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XLVII

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Entered as second-class matter, March 25, 1909, *at the post-office, New York, N. Y., under the act of March* 3, 1879. *Acceptance for mailing at a special rate of postage provided for in Section* 1103, *Act of October* 3, 1917, *authorized on June* 26, 1918.

the staff of the Bureau Industrial Research we ndebted not only for the al conception of this num- but for collaboration at point in bringing it to The Bureau is not, ver, responsible for any e articles except those ap- ng under the names of its In addition to those ers whose articles make me of the most striking res, we wish to acknowl- our indebtedness to AR- R GLEASON for help in ing and executing the er, and especially to SAVEL ND, whose initiative in ing up the Irish number e SURVEY GRAPHIC last s well known to our read- "He has done it again." BERT W. BRUERE'S arti- n The Coming of Coal is n from the manuscript of remarkable book on coal, ly to be published. Mr. re knows writing; he has t English at Chicago Uni- ty and has been an editor he staff of Harper Broth- He knows labor; he served e Board of Arbitration of Dress and Waist Industry 1913 to 1918, and is a tor of the Taylor Society. knows coal, for as director he Bureau of Industrial arch he has centered for years past upon this sub-

hen life is low, and edi- l stakes not worth playing then comes a letter from och, from HENDRIK WIL-LEM VAN LOON—something historical, domestic, profane. Life picks up. Editorial troubles pale besides those of merely the most popular author. For instance: "An enthusiastic collector has offered me a thousand iron men for the manuscript of Mankind. Lord help us! We used it to pack our china in when we came out here to Antioch and burned it up with the barrel."

WILLIAM HARD is too astute in his perceptions, perhaps, to be called a member of the public par excellence. Nevertheless, by virtue of his brilliant study of the public's interest in its own matters he has been chosen to interpret the public to itself. Fifteen years ago his article in Everybody's on Making Steel and Killing Men opened up the industrial accident problem as never before, and helped to set going the safety and compensation movements. In war time, his friends among the coal operators liked his articles about their services to the Fuel Administration. They did not like his articles about the subsequent strike. "I never meet anybody," he says, "who likes my articles really steadily. The English reprinted my Metropolitan articles on How the English Take the War in hundreds of thousands of copies, but they did not reprint my Metropolitan articles on Ireland. I do not blame people for thinking I am contradictory. I report first the

North Pole and then the South Pole and perceive their opposite merits and have never yet put them into a system."

LEWIS W. HINE went for the SURVEY GRAPHIC into the Pennsylvania mining country especially to get the pictures which so amply describe the human setting of coal and which tell more than pages of text about the worker and his job. In his work portraits, Mr. Hine has done what neither painter, nor sculptor, nor etcher has yet attempted for American industrial life.

The things that give a man his temper rather than his technique are interesting. Be it known that for several years, SHERWOOD ANDERSON was a manufacturer in an Ohio industrial town and sold goods in the mining districts of Ohio and Pennsylvania. "So you see," he writes, "I traveled through those towns a great deal, living at the hotels, etc. I was in those days, as I am now, a great tramper of streets, alleyways and hillsides. If I know anything of mining towns, it is the human side; soaked up."

WINTHROP D. LANE, a contributing editor of the SURVEY and known to our readers for his staff investigations in the past, revisited for us in midwinter the coal fields of West Virginia to learn in terms of household and mining towns the chapter which unemployment has been writing on the mountains these last desperate months. Mr. Lane was an expert witness before recent Senate hearings, and his book, Civil War in West Virginia, sums up the labor conflict there, as finely interpreted by him in a series of articles in the New York Evening Post.

HEBER BLANKENHORN's interest in coal dates back some years. In 1920 and 1921 he spent many months in the coal regions of Pennsylvania, Indiana, Illinois and West Virginia and has attended the principal district and national conventions of the U. M. W. of A. from August, 1919, to January, 1922. As a member of the Bureau of Industrial Research he was appointed secretary to the Commission of Inquiry into the Steel Strike of the Interchurch World Movement and as such was in charge of their challenging and incisive field investigation.

F. G. TRYON is a student of the economics and technology of the energy industries, coal, oil, gas and waterpower, and can speak with authority on the causes of irregularity of employment in the bituminous coal industry. He is the geologist in charge of coal and coke statistics of the United States Geological Survey. W. F. McKenney, who signs the article with Mr. Tryon, is his associate there, coming to the Geological Survey from the Bureau of Labor Statistics where his work took him into every mine field.

DAVID L. WING, who is writing on anthracite, was for many years in the employ of the former Bureau of Corporations and its successor, the Federal Trade Commission. In 1916 he was placed in charge of an investigation, ordered by Congress, into the bituminous coal situation. When President Wilson, in August, 1917, was called upon to fix government prices for coal under the Lever Act, these prices were based on the cost information which had been secured up to the that time by the Federal Trade Commission. Mr. Wing wrote the seven coal cost reports of the commission. The President based his action on these findings. Mr. Wing resigned in May, 1920, from the post of Assistant Chief Economist, and established himself in an office in Washington to do private work, executing various public and private commissions.

There have been few interpreters of the run-of-mine leaders in American industry. HUGH ARCHBALD, engineer and mine superintendent, was brought up in a town where coal outcropped in the street before his father's house. For twenty years he has been working in and around the mines. Except for short periods at gold mining and other work, most of this time has been spent in the mining of both anthracite and bituminous coal. After the Armistice he was assigned to the duty of lecturer on mining at the Ame Expeditionary Force University which was establishe Beaune, Cote d'Or, France. His book on the Four-H Day in the Coal Industry will be published in April.

At the age of twelve, JOHN BROPHY began to in the mines of Central Pennsylvania. In 1916, after t ty-one years as a miner in Illinois, Iowa, Michigan Pennsylvania, he was elected President of District N of the U. M. W. of A. and has served continuously s He and his group of miners in District No. 2, inclu Richard Gilbert and James Mark, have presented analysis of existing evils and a suggestion for their Their technique is not agitation, but a calm attack on problems of their industry. They have taken time to t out a step forward. They have carried on investigat into car-pushing, accident compensation, non-union co tions, production. In addition to thousands of educati pamphlets on the coal industry, they recently have sta a newspaper in the district. The international organ tion has recognized the work of District No. 2 by appo ing Mr. Brophy chairman of the Nationalization Rese Committee, created in September of last year. His ar is largely drawn from its forthcoming pamphlet, How Run Coal.

While SAVEL ZIMAND was in Ireland last summe made a special trip up into Scotland to spend a few with Robert Smillie, the greatest miner that the world seen.

POWERS HAPGOOD is a Harvard graduate who is a m ber of the United Mine Workers of America. His ar in this issue represents a few chapters from In Non-U Mines, his diary as a coal digger in Central Pennsylva to be issued April 1 by the Bureau of Industrial Resea

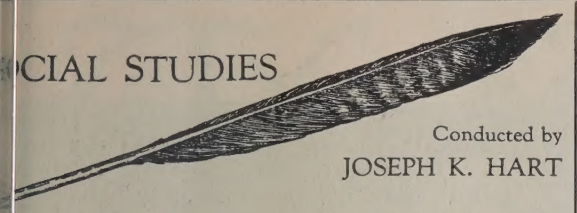
CARL SANDBURG's poetry is much of it, as some of critics say, "simply beautiful speech"— beautiful bec true and important. His verse, though not propagand nevertheless a contention always for the underman, in case for the man from the "underside of a hill."

C. E. LESHER who speaks for the operators on the troversial issues coming up this spring, is now editor of Coal Age. In 1916 while in charge of coal and coke tistics for the Geological Survey he made the first s of distribution and consumption of coal ever attempted in country. In 1917, as adviser to the Peabody Comm on Coal Production, he instituted the weekly report coal production and analysis of mine operating conditi He was director of the Bureau of Statistics for the Administration and in the strike of 1919 served on central coal committee at Washington.

Since his service during the war as secretary of the tional War Labor Board, WILLIAM JETT LAUCK has what he terms an independent practicing economist. speaks here for the miners' union. His contacts with the industry have been as follows: economist for the U Mine Workers in the wage case of soft coal miners be the Bituminous Coal Commission, 1920; for the hard miners before the Anthracite Coal Commission, 1920; for West Virginia coal miners in their struggle with the o tors and before the Senate Committee on Labor, Now he is engaged in the present wage negotiation of an cite and bituminous mine workers.

Prophecy to close! CHARLES PROTEUS STEINM came to this country as a poor immigrant. Now he is chief consulting engineer of the General Electric Com at Schenectady. During this remarkable interval he shown genius in electrical invention comparable only to of Edison. Therefore his anticipations of the compl electrical age, due because coal must eventually be repl will find believing hearers. His latest feat in produ lighting is reminiscent of Franklin. He is the outstan electrical engineer of his time.

CIAL STUDIES



Conducted by
JOSEPH K. HART

DOWN TO HARD-PAN

ne of our chief industrial problems are epitomized in ituminous coal areas today. Reduction in wages, s in operation, consumers' concern for price reductions, demands that "workers must work," human suffer- lue to broken work periods—all these are stubborn fac- here. The miners demand a thirty-hour week. "That fool demand!" cry the newspapers, not because the nd is impossible or unfair, but "because the public not understand it." A standard thirty-hour week l actually increase the amount of time the miners put

r the anthracite districts, operators and miners are con- g on new scales. In spite of their specific commitment e agreement ending March 31, the soft coal operators d to confer. As we go to press, the government has ntervened, and it seems inevitable that on April 1, inous areas will be abandoned to the chaos of iron and stubborn passions, leaving the decision of the con- to the old crude economic forces. In that case in- ence will have abdicated. What will the result be?

Waiting for Things to Happen

Has there been anything else the bituminous miners could fore striking to make a peaceful settlement possible? What een happening in the minds of the workers? In the wills of mployers? In public opinion? To the prestige of govern- ? To the general industrial morale? To our theories of rial control?

at has been happening to the morale of the bituminous oper- while they have stood pat? What will be the effect of all happenings on the future relationships between the contend- terests?

The Triumph of Superstition

Our conventional public opinion tends to believe that the rican way" is to let private industrial disputes "settle them- ." Is this coal controversy a private industrial dispute? happens when a dispute "settles itself"? What becomes plans of both the contending sides? Is there any intelli- in such a settlement? Is it too much to ask for intelligence e settlement of disputes? Do such controversies always "turn out for the best"? Are we justified in depending chance to settle our disputes for us? How does depending chance differ from primitive superstition?

What Next in Coal?

Shall we accept industrial war as inevitable? Who is nsible? Or, is responsibility in our complex society an out- concept? Is American civilization to be regarded as a where private industrial armies may fight at will? Should ining of coal be subjected to intelligent organization? What this involve? Would American types of thinking permit organization? In any industrial field? What is the alter- e to this? What are our real objections to thinking about ndustrial problems?

ERENCES:

All articles in this issue.

—Prof. Ripley Writes

WHAT I have to offer is the outcome of downright practical experience in the field of industrial relations during the last five years. . . . First off came the opportunity in 1916 to take a *Rücksack,* knock about for several weeks in the cabs and cabooses of American railways, preparatory to drafting a report for the Federal Eight-Hour Commission on the evolution of the trainmen's schedules . . . . Then came the war and a term as administrator of labor standards in the War Department. This was followed by a shift to two years' service as chairman of the National Adjustment Commission in the Shipping Board, which dealt with waterfront labor conditions all over the country.

SUCH a procession of labor problems and of human types! All sorts and conditions of men: Sicilians in New Orleans; bolsheviki on the East Side; all kinds of crafts from cloth spongers to roundhouse men; from longshoremen 'on the beach' in Brooklyn, to switchmen in Chicago; Negro and white, cotton rollers and coal wheelers on the Mississippi; dredgemen on the Great Lakes; machine and hand strappers; buttonhole makers, checkers and weighers, grain ceilers, and even cattle feeders and 'bull stallers.' Fair-minded men, wicked men, sea lawyers, fanatics, thugs and gunmen; generous men and greedy hogs! And then all the interesting personalities; Gompers, Hillman, O'Connor, Furuseth, and even Hylan and Vacarelli! Really a vast welter of experience if one could only have leisure to cogitate upon it in peace.

Another instalment crystallizing his experience in ripe philosophy well embossed with human incident in

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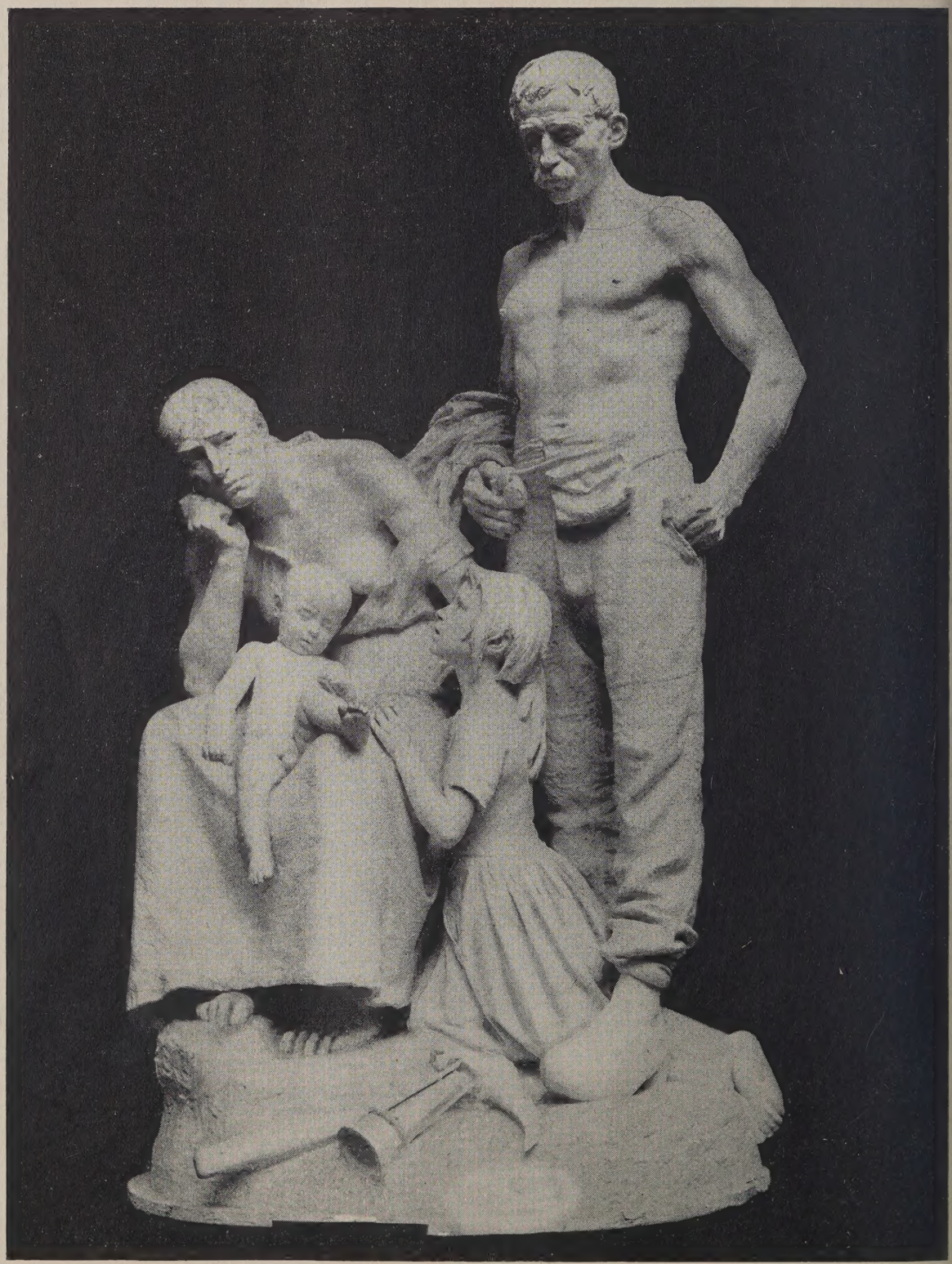


DURING THE STRIKE

By Theunissen

THE SURVEY

GRAPHIC NUMBER

March 25, 1922

Volume XLVII
No. 26

The Coming of Coal

By ROBERT W. BRUÈRE

DRAWINGS BY HENDRIK WILLEM VAN LOON

SCIENTISTS tell us that the energy poured by the sun on the Desert of Sahara in a single day exceeds by fourfold the energy stored in the annual production of all the coal fields in the world. They dream of a time when the radiant energy of sun will be captured and turned to the uses of Then the wheels of our myriad machines spin with the sun and the stars. In the soft r of their motors men will hear the music of spheres.

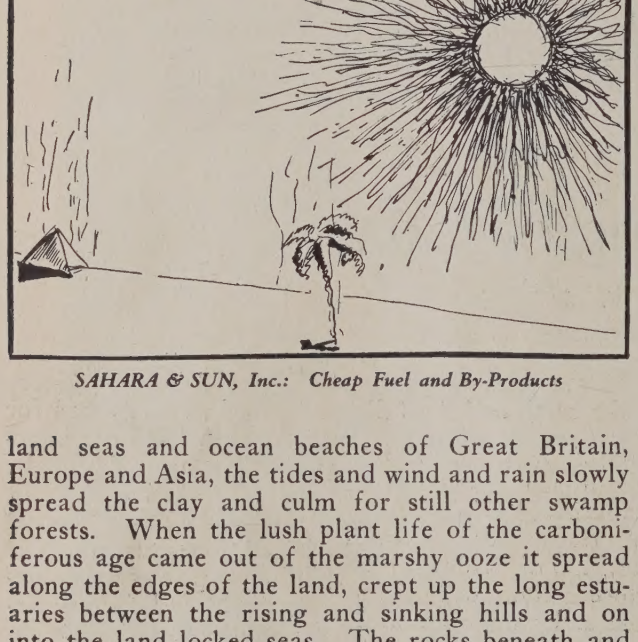
hen that time comes, will it signal the triumph nan's will over nature, the end of the brute ggle with hunger? Will it find our ideals of eration, service and brotherhood ripe for prac- application? Or will it mark a new intensifica- of the exploitation of man by man, of the clash roups for power, of international wars for pos- on? Shall we have the spiritual capacity to h our technical achievement?

ess than two centuries ago the steam engine essed coal to the looms of England. With coal e cheapened iron and steel, and with steel and m came the Industrial Revolution massing ories in cities, its railroads weaving manufactur- centers together, its steel ships and cables and graph wires unfolding and integrating the eco- ic life of the world. In Western Europe es- ally it converted an age-long economic deficit into economic surplus. For the first time in human ory it brought the possibility of the good life to yman's door. But it found men spiritually un- ared. The ancient bread hunger was still upon n. They had not learned to love their neighbor themselves. As in the tribal days men warred n one another for food so now they warred n one another for coal and the incredible spawn coal. For coal means food, clothing, houses, s, railroads, newspapers, chemicals and guns. With the coming of coal and coal-driven machinery the earth and the fullness thereof was unlocked for the service of man. There was not only the possibility of the good life for each but also of a noble, well ordered civilization for all. And instead of establishing civilization on foundations of mutual aid, service and brotherhood, men turned their cities into shambles of childhood; poverty was embittered; civil strikes in mine, mill and factory became endemic; wars on an unprecedented scale engaged nations and groups of nations. The World War and the famine and widespread desolation that followed gave tragic evidence of our spiritual unpreparedness.

Yet it would be as falsely sentimental to set up a golden age as a heightening background for the evils that came with coal as it would be to ignore or gloze over those evils. Economic insecurity, poverty, disease, wars and blighted childhood are as old as human existence. The world is a better, richer, more vibrant and thrilling abode since coal came than it was before. The indictment of our coal age can be justly based, not upon what it has destroyed, but rather upon what it has missed—upon its spiritually blind, its bungling and inadequate use of a gift more magnificent than any allotted to man since grain was first sown to the harvest and ground at a mill. An indictment that involves all mankind is hardly an indictment at all. It is rather a confession of our common human limitations, a recognition of the tragic circumstances of our spiritual growth.

THE making of all the coal in the earth began when the sun hurled the earth into its orbit. Before there were vertebrates in the sea, or animals or plants of any kind on land—fully one hundred and fifty million years ago—low foldings and depressions appeared on the earth where the Appalachian mountains now are. Following the lines

of what is now the Atlantic, vast ridges appeared. Ages later swamp forests grew in the intervening valleys, bearing and shedding the spores and thick sombre leaves still traceable in the lower carboniferous strata. In that time, a shallow sea covered what is now the Mississippi Valley in whose sluggish shoals other swamp forests grew. Along the in-



SAHARA & SUN, Inc.: Cheap Fuel and By-Products

land seas and ocean beaches of Great Britain, Europe and Asia, the tides and wind and rain slowly spread the clay and culm for still other swamp forests. When the lush plant life of the carboniferous age came out of the marshy ooze it spread along the edges of the land, crept up the long estuaries between the rising and sinking hills and on into the land locked seas. The rocks beneath and about these carboniferous forests rose and sank age through age, cycle through cycle. When they sank slowly, tangled morasses formed; when they sank rapidly, the inrushing water killed the plants and buried them under a covering of silt. When the rocky strata rose again, the swamp forests crept back to their old places, and again bore and shed their fernlike leaves, their spores and great scarred trunks upon the oozy bottom now scores or hundreds of feet above the level on which their ancestors had stood ages before.

Then, some seventy million years ago, a Geographical Revolution convulsed what is now northeastern America. The great trough running parallel to the Atlantic, where swamp forests had grown and died and grown again, gave way under the ever-increasing load of wind- and rain-borne sediment. The ridges at its sides pressed in upon it, crumpled it into giant folds, broke it, pushed its shattered edges out in mighty overthrusts, released molten rock to flow up and over its torn surface. The whole titanic mass was racked and twisted with pressure and heat until what had been a slowly subsiding sea-bottom, covered with decaying swamp vegetation, rose on the shoulders of the new-born Appalachian mountains, then a lofty range of clean, stark peaks stretching from Newfoundland to Arkansas—two thousand miles.

And with this great Geographical Revolution, the work of making coal in eastern North America was finished. From the softest bituminous to the ha anthracite, that work was done.

But in other parts of the world, the dense boniferous forests continued to grow for an fifty or more million years. In the shallow the Mississippi Valley, on the shores of the is that is now Colorado, the coal plants grew and with the seasonal march of the sun. In part Europe, Russia and China, coal continued to f

And then came another Geographical Revolu some twenty million years ago, that raised up Rockies and the Andes along the western bo of the Americas, tore and twisted and upturned rocks of Europe and Asia, until with the excep of a few odd pockets where small swamp fo lived on for a time, the coal making of the w earth was ended.

Twenty million years ago, all the coal we or shall have had been packed away beneath ribs of the earth, in seams varying in height f sixty feet to the thickness of a blade of grass. many places the flat layers in which it was firs posited had been thrown into overlapping f Some of it had been subjected to comparatively heat and to the pressure only of the rocky st above it; this is the bituminous, which is still in oils, gas, tar—unreleased volatile matter. S had been crushed by the weight of uplifted m tains, blasted, fused and burned by molten lava volcanic flame; this is anthracite, which is al pure carbon and ash. Some had been expose greater pressure still, to intenser heat; this is gr ite which can no longer be burned at all.

THE distribution of coal in the world by qu and quantity has been, next to climate and fertility of the soil, the physical fact of most dec importance in the history of modern civiliza For countless ages coal lay practically unuse

The eight-hour day 150,000,000 B. C.

the earth. Then, some time between 1750 and 1 an intricate interlocking of circumstances set to rule the world, not through new discoveri coal itself but rather through certain remark improvements in spinning and weaving machi which made possible the massing of large num of spinners and weavers together for large production, if power could be found to drive

machines. The steam engine had already been ited, but it was still a tentative thing, a primi- type, wondered at and experimented with. had been used, but only in a few favored spots e it cropped out on the earth's surface, or was ed ashore by the sea, and then only as a domes- uel. It was at the call of the master weavers spinners of England that the steam engine was o run the machines, then to furnish a blast so coal might be used to cheapen the smelting of and steel so that more machines might be made, to pump out the deepening mines so that more more power to keep the machines running might von. Steam raising was coal's first great play power and it is the work through which it still s its industrial supremacy. Between 1800 and o coal driven engines multiplied until by the end he century they were producing energy equiva- to seventy million horse-power; during the first ty years of the Twentieth Century, their power ducing capacity more than doubled. So coal ught the Industrial Revolution, the greatest olution in all human history, which transformed al and economic life as radically as the Geo- hical Revolution transformed the earth's ace.

Measured by the crude standards of gross wealth numbers, the people of the earth have flourished htily since the dominion of coal began. The regate wealth of the world has increased to ulous proportions. The average expectation of among western peoples has doubled. Between o and 1910 the world's population rose from roximately 640,000,000 to 1,616,000,000. The ulation of England, which had increased only per cent from 1651 to 1751, increased 200 cent during the next century. Between 1816 1910, the population of France increased 50 cent, of Germany 300 per cent, of the United tes 1,700 per cent.

Moreover, the drive of coal's cosmic energy im- nsely stimulated men's inventive faculties. It nsformed Kay's "flying shuttle" and Hargreaves' inning jenny" from clever toys into instruments large scale production, the crude steam engines Newcomen and Watt into the great modern omotive and the turbine engine. It made possible large scale production of telegraph wires and an cables, the cylinder press and typesetting chines, the electrical dynamo, the internal com- tion engine, the aeroplane, and even the space ging modern telescope. It lifted the veil from seven seas, broke down the physical barriers ween the peoples of the earth, forged the steel mework of national and international govern- nt. The commercial and political primacy which gland held for more than one hundred and fifty rs rested upon her abundant fields of easily access- coal. The cosmic energy flowing out from her es spread her trade and her surplus population the four corners of the earth and made her mphant over Spain and Holland—nations poor coal. The coal of Westphalia, associated with iron ores of Lorraine, welded the states of Ger- many into the empire of the latter Nineteenth Century and hurled her green-grey armies across her frontiers in the mad adventure of 1914. The vast rich coal fields of North America have transformed the United States from an agricultural appanage of Europe into the foremost manufacturing and commercial nation in the world. The future of Russia lies largely in the coal fields of the Donetz basin. The imperfectly surveyed coal and ore fields of China and Siberia are probably the greatest of the magnets drawing the Powers into the Problem of the Pacific. Coal and the continuing Industrial Revolution are still shaping the destiny of mankind.

The geographical revolution

COAL embodies our chance of a world civilization. It is the material form in which the possibility of peace and ease, beauty and learning, cooperation and brotherhood have come to the human race.

Before coal was harnessed to the looms of England, before the stored energy of the sun replaced hand labor at the wheels and gears of her newly invented machines, there was no such thing as a world civilization. There was indeed nothing to base a world civilization upon, for civilization implies leisure to cooperate consciously with other people, to make life not merely endurable but beautiful and pleasant as well, leisure to subordinate the instinct to acquire to the instinct to enjoy, the acquisitive instinct to the consciousness of kind—and the race as a whole had its entire attention focussed on the effort to get enough food and clothing and shelter so that it would live and not die. For only as the acquisitive instinct was dominant and successful could men survive either singly or in groups, before the coming of coal.

We begin to approach a world civilization because since the coming of coal, to kill or starve is not the inevitable choice even though it may tend to be the common practice.

That this alternative has even a chance of operating is due to the play and interplay of the two great fundamental instincts in the soul of man—the acquisitive instinct through which he learned to use

coal to pile up the material surplus that made civilization possible; and that other impulse, an offspring of the acquisitive instinct which has swung into opposition to its parent but without whose help that parent could never have achieved a surplus on a large scale—the feeling of brotherhood, of mutual aid, of cooperation. For without cooperation among men there would have been lacking the tremendous advantage of division of labor and mass production, and no surplus however large and secure it might have been could have resulted in civilization except through mutual aid. Men learned to work together in order to survive, they learned to enjoy the results of their labor together in order to become civilized. These two impulses are woven together in man's history from the start and it is according as one or the other predominates that we develop a civilization on the basis of our economic surplus, or merely continue to exist upon it.

This instinct of mutual aid is as truly a cosmic force as the acquisitive instinct.

"The original and elementary subjective fact in society is the consciousness of kind," writes Professor Giddings. . . . "It is the basis of class distinctions, of innumerable forms of alliance, of rules of intercourse, and of peculiarities of policy." . . .

If the consciousness of kind had spread evenly like a rising tide drawn up by the swelling surplus of the age of coal, a world civilization might have been quickly come at. But it worked unevenly and erratically. Sometimes it spread thinly over whole nations in the form of political beliefs and produced theoretical democracies functioning through the franchise. Sometimes it left the forms of government severely monarchial and produced a spotty economic growth in the form of cooperative societies that functioned in response to the every-day bread and butter needs. Sometimes it brought those having similar occupations together in guilds and trade unions that tended to ignore mere political bounderies and make men internationally conscious of each other through the way they got their living. But everywhere the rising consciousness of kind came upon obstructions and divisions. Waves hurrying up innocent looking estuaries would come upon other streams from the same great source, and meet in spluttering frothing conflict: a long even swell of brotherly feeling would break over some rock of ancestral race prejudice in disaster and bloodshed; mutual aid rose in a murky troubled sea, wave against wave, one current trying to beat another current back. People united into a political nation opposed themselves violently to those united into some economic class within it. Men were driven apart when the interests of their group conflicted with the interests of other groups almost as strongly as they were drawn together by their common interests within their own organization.

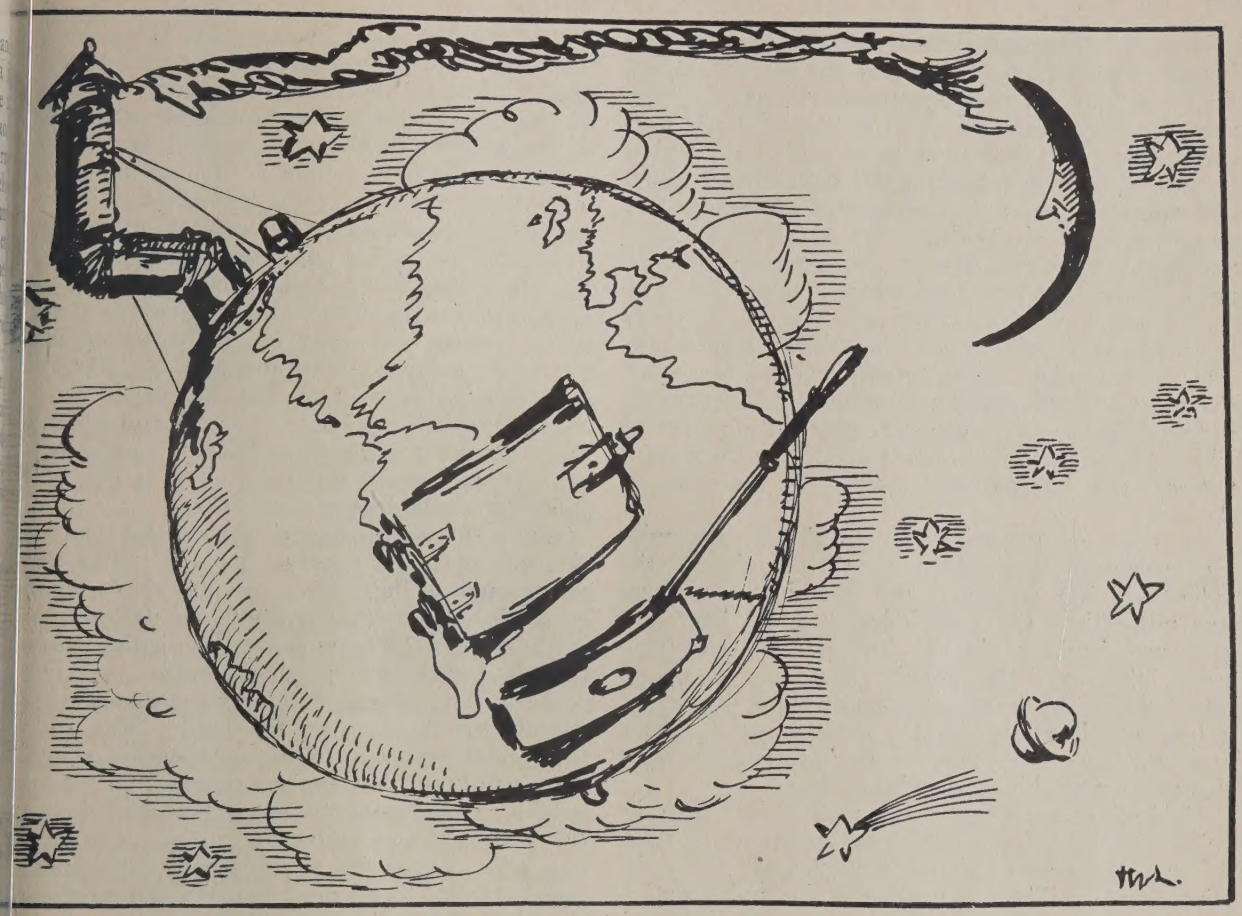
Only slowly is our community, to which the coming of coal has given the chance to develop a world civilization, learning to see that neither the acquisitive instinct through which men pile up a surplus, nor the consciousness of kind through which they organize to build up a civilization, is the result of individual perversity or caprice. Unions and ployers' associations arise in obedience to a fu mental law of human conduct, they are the m by which society wins its way out of chaos anarchy into peace and orderly governm Through such group organizations men develop understanding of one another and of the commu at large, which is the foundation of brotherh and civilized life. It is through them that the c munity develops standards of living; it is thro them that the ideals of cooperation acquire rea It is by the acquisitive instinct that men live; i by the consciousness of kind—the instinct of mut aid and cooperation—that men are transfor into human beings. The interplay of these cos forces makes the history of civilization—of nati and the great basic industries within the nati

THE human significance of coal lies in the ef which the release of its cosmic energy has e cised upon the struggle between the acquisit instinct and the consciousness of kind for ascenda over the soul of man. Through its creature, Industrial Revolution, it has given man comm of an economic surplus and set him free to win good life for each individual and to substit mutual aid for war in international relations he will.

But the first effect of coal was not to usher in good life but to intensify the ancient struggle to widen its stage from pocketed civilizations the world. For more than a hundred and f years, the abundant and readily accessible coal Great Britain made her the protagonist in world drama. It gave her an economic surplus u the basis of which the consciousness of kind wel her people into one nation and ended civil war. transformed her with jarring rapidity into a cou that lived by manufacture and by trade and s ported a far larger population than could have li upon the island if it had been merely an agricultu country raising its own food.

But in order that England might live by tra some other land must live by agriculture, during the first hundred and fifty years of Industrial Revolution that land was Amer To live by agriculture was an easy thing in New World, easier than it had ever been anywh before—to live and to feed a continent besides. alone among the nations, the history of the Uni States is written against the background of econo abundance. After the first thin stream of colo adventurers and exiles for conscience sake established themselves upon the Atlantic coast, seemingly boundless domain opened up before hungry millions of Europe like the promised l of milk and honey. Unlike the peoples of the g Asiatic and European folk-wanderings, they fo no comparably developed peoples to bar their w

At first America's planless prosperity had li to do with coal and nothing at all with manufact It was a prosperity made up of the sum of her f products, and men skimmed the soil and the for with only one thought—to make that sum



THE WHOLE WORLD A STOVE

diately great. Exploitation got into their blood. was the method by which they grew rich, and en the wealth of the coal deposits was added to wealth of the fields and forests, they carried same methods of planless exploitation over into coal mines. England must still depend on them food, but they did not have to depend so abject- on her for manufactures since the Industrial volution crossed the Atlantic at the call of the nnsylvania coal fields.

After the Industrial Revolution harnessed their que reservoirs of coal, the people of the United tes enjoyed a degree of economic security such no other people ever enjoyed.

The hungry immigrant millions swarmed across continent, laying waste the forests, skimming fresh fertile soil, growing prosperous by destruc- n rather than by thrift and planful use. They roused and swaggered like prodigals. They orified mere acquisition, measuring a man's worth the money he owned. As they filled the conti- nt, the old world fever of imperial expansion tered their blood. They seized Cuba and the ilippines, Haiti and Santo Domingo. They set out building the greatest navy in the world. After few faltering efforts to lead the warring nations peace through conference and conciliation, they rew the weight of their wealth and numbers into balance and with fire and sword imposed a torious peace.

They were able to do this in the last analysis because of the enormous power of their coal supply, for coal in a modern industrial civilization means guns and munitions of war, transportation systems to set armies in the field and the ability to supply them after they get there. America's coal-wrought wealth made her decisive in battle. Even so today her unique reserves of coal make her the arbiter between peace and war in the world. Possessed of the richest coal fields in the world, she holds the destiny of the nations in her hands.

IT is obvious that the manner in which her people develop and govern their coal fields is of crucial importance not only to themselves, but also to the rest of the world. Before the United States entered the World War, her people were hardly aware of this fact; even the momentous experience of the war has but dimly impressed its significance upon the national mind.

The very abundance of the supply has made us enormously wasteful in its exploitation, as we have been wasteful in the exploitation of our forests. Unlike the forests, coal once destroyed does not grow again. The most valuable of our coals are in the Appalachian bituminous fields that stretch from northern Pennsylvania to Alabama, and in which a number of the best areas have already been gutted and abandoned. In our greedy grasp for wealth,

we have left one ton of coal to waste underground for every ton we have brought to the surface. More than one hundred and fifty thousand miners have been drawn into the mines in excess of efficient requirements. Planless over-expansion of the industry has resulted in such irregular operation of plant and equipment as to keep the miners unemployed on an average of ninety-three out of three hundred and eight working days in the year and to impose a needless overhead charge upon the consumer which F. G. Tryon of the U. S. Geological Survey calculates at a million dollars for each working day. Planless exploitation has made the most basic of our basic industries the prey of technical inefficiency and social unrest the extent of which we as a people ignored until they threatened national and international disaster at the crisis of the war.

In 1917 of necessity the weight of the military structure was added to the weight of the industrial civil structure and the combined load was more than the coal industry could bear. It bent and broke under it, and in order to prosecute the war, the government was forced to take hold of the formless inchoate thing and shape it into a stable prop for the national need. As a first step it was necessary for them to find out what this great unwieldy coal industry was.

Coal mines are systems of tunnels driven into the veins where they crop out along the slopes of hills, or from the foot of shafts sunk through the overlying strata. These tunnels run for miles underground. Secondary tunnels run from the main tunnel or heading into the rooms where the miners work. The surveyor's diagram of a mine looks like a crushed centipede. The getting of coal out of the mines, after it has been picked or blasted down by the miner, like its distribution after it is brought to the surface, is almost entirely a problem of transportation.

Even in times of peace our railroad transportation was an intricate and complicated thing. Instituted primarily for the purpose of paying dividends, it had been repeatedly regulated and reregulated to bring it more in line with community needs. Among other regulations was a law, designed to give the public the benefit of as much competition between operators as possible, requiring the railroads to furnish sidings and cars to all coal mines in proportion to their production, with a preferential provision for new operations. The double demand for coal sent up prices and the rise in prices led to the opening of new coal mines and the reworking of old abandoned ones. All the eleven thousand mines, scattered more or less at random over thousands of square miles of territory, clamored for their legal quota of cars and transportation to market. This competitive din aggravated the confusion upon our already over-taxed railroads. At the critical moment when the essential movement of troops and munitions was straining the resources of the railroads, the sprawling coal industry made their problem impossible.

In peace times one-third of our ordinary bituminous production is used to generate steam for tr portation, and more than one-third of all the nage carried by the railroads is coal. The we of the coal which the railroads normally carr double the weight of iron ore, steel, lumber, wh corn, oats and hay combined. The problem of h ing this huge load is needlessly complicated by c petitive cross-shipments of coal from one mi state into or across another. The producers Illinois, Pennsylvania and Indiana sell their co from eighteen to twenty states, many of them mining states. A part of this cross-shipmen necessary, because certain mining states like Illin for example, do not produce the grade of co coal which their steel factories need and which m therefore, be brought from West Virginia or so ern Pennsylvania. But most of it is due to b competitive planlessness and waste.

Upon this tangled mesh the critical demands the war placed a crushing burden. The nati safety made it imperative not only that coal sho be produced, but that it should be delivered wh it was needed. The miners were digging more c than had ever been produced before, yet cries coal shortage went up from domestic consumers manufacturers all over the land. The railro themselves resorted to the confiscation of coal transit to keep their engines running. To avert pending catastrophe to the nation and the wo the national consciousness of kind asserted its over the acquisitive instinct of individuals groups, and through the federal government crea the Fuel Administration which brought the mi under unified public control and converted the c industry, for the period of the war, into a uni public service.

From the high central tower of the Fuel ministration, the people of the United States the first time caught a fleeting glimpse of the c industry as a whole and of the relation it bears the national and international industrial life. T discovered that coal bears much the same relat to our modern industrial structure that the wa supply bears to the life of a great municipal When America entered the war, she resembled w respect to her primary source of mechanical ene a municipality dependent for its water supply u eleven thousand separate wells, owned and opera primarily in their individual interests by thousa of enterprising individuals, with hundreds of se rate delivery systems jostling in the highways t needed to be kept clear for soldiers and guns, people bidding against one another, offering fa lous prices for water, yet parched with thirst.

"Basic industries and transportation," writes Dr. C field, in describing what he saw as head of the Fuel ministration, "were caught in a vicious circle. Steel c not be manufactured without coke, coke could not be m without coal; coal could not be commercially produced w out transportation; transportation was dependent u coal. . . . Industrially we were in a wild scramble manufacture, production and shipment. . . . It was longer a question of withholding coal from non-war in

but rather a question whether any coal could much get through to any consumer."

With eleven thousand coal mines in operation, the mes of the nation were running cold for lack coal.

CREATED to avert impending catastrophe, the Fuel Administration went about the service of nation much as an engineer would tackle the of converting eleven thousand wells into a ern system of water supply. It dealt with the fields as a single great reservoir of fuel and er. It worked out a budget covering the needs the essential industries—the railroads, steel ts, munition factories, gas and electric utili—as well as of the domestic consumers. It made s charting the coal producing and consuming itories, divided the nation into regional zones, blished these zones as fuel reservoirs, created stributing organization by zones and states like reat system of water mains. It called the exenced operators and technical managers into the lic service and entrusted to them the technical blems of production and distribution. It fixed es limiting profits to an estimated fair return. converted the miners' union and the operators' anizations into administrative arms of the govment for the industry, with committees for conence and conciliation at the mines, and in the ious producing districts, heading up in a Bureau Labor at Washington as a final court of appeal the adjustment of disputes over wages and rking conditions.

For the period of the war, the coal industry funcned as a cooperative public service. The coal lget, based upon a detailed analysis of the ntry's resources and needs, set a definite standl of performance both for the industry and the lroads, and made it possible for them to cooperintelligently. The zones served as tools for the trol and direction of the flow of coal called for the budget.[1]

It has been said that this extraordinary achievent was possible because during the war the people d a common object which so challenged their her ideals that they were able to subordinate ir individual and special group interests to the vice of the nation—to make their consciousness kind as a people triumphant over the acquisitive tinct. Again it is said that human nature being what it is, similar unselfish consecration is not to be expected in the sluggish days of peace. But if the historical record teaches us anything it is the essential falseness of this assertion, for that shows us the gradual irresistible spread of the consciousness of kind from one realm of human activity to another as the acquisition of a surplus makes this possible. It shows it reaching out to give all men religious freedom, to assure them equal political rights; shows it asserting their brotherhood in the right to education, health, to happiness—and these things not under the stress of war but in the conditions of peace. The possibility hangs not on any technical inability, but on the better preparedness of the minds of men, on their clearer vision—their ability to see a great public utility as a spiritual force.

WITH the declaration of the armistice and the removal of the incentive to cooperation in public service which the war gave, the Fuel Administration with its elaborate system of statistical control of production and distribution was broken up as rapidly as it had been organized. During the war, there had been gross examples of profiteering just as there had been occasional local strikes, but by and large the operators like the miners had conducted themselves conscientiously as servants of the republic. They accepted public regulation of prices and wages, they gave their time and skill to the Fuel Administration as eagerly as other men devoted themselves to the army and navy, to a remarkable degree they subordinated their acquisitive instinct to their consciousness of kind as citizens of the nation whose life was threatened from without. But within a year after the armistice, speculative profiteering was rampant and the coal industry was paralyzed by a general strike. Herbert Hoover, addressing the American Institute of Mining and Metallurgical Engineers, described the situation as a "national emergency," due to the fact that "this industry, considered as a whole, is one of the worst functioning industries in the United States."

A coal mine

[1] To provide coal was the problem of the Distribution Division of the Fuel inistration; to provide transportation was the problem of the Railroad inistration. . . . The adoption of the zoning system represented the eme effort of the Railroad Administration to overcome the transportation le in connection with coal. . . . So closely did the officials of the two inistrations work, and so effective were the measures employed, that the lts surprised all. . . . When the armistice was declared, New England, hest from the mines, with an average of 20 weeks' supply was literally ed with soft coal, and eastern New York and Pennsylvania, with from 9 weeks' stock, had abundant supplies. . . . The schedule for ship- ts to tidewater from April 1 to July 1 called for 11,916,000 net tons. By December 21 shipments were 9 per cent ahead of the program. The e program called for 28,000,000 tons of cargo coal; a total of 28,153,000 was supplied. With similar precision and certainty munition factories, nals, powder works, and by-product plants were kept running, while stocks e accumulated, insuring uninterrupted operations throughout the winter. he same manner, retail dealers were given supplies for their domestic e. Such results were possible only because of complete control of ship- ts and the full information on which to proceed.—The Distribution of and Coke, by C. E. Lesher.

How shall we account for this wide, swift swing of the pendulum? Operators and owners who had offered their lives to the government during the national crisis rebelled against all further "interference with their private business." They rebelled not only against price fixing and the regulation of distribution, but even against all attempts on the part of governmental agencies to keep congress and the public informed of the elementary facts of ownership, costs, wages, prices and profits, without which public opinion is helplessly blind. They sued out an injunction against the Federal Trade Commission to block its efforts to search out and publish these essential facts. The unions also chafed under governmental restraint upon their freedom of action, especially when the government lifted its limitation on prices and left the consumer at the mercy of an open market. As prices and profits mounted, they felt entitled to commensurate wage increases. The war, they said, was over though peace had not been formally declared, and they demanded release from the restraints of wartime legislation so that they might freely exercise their economic pressure to secure wage increases as the operators were taking increased profits. For the first time in almost a generation they laid down their tools, and finally submitted to the arbitration of federal commissions only under threat of an injunction and the imprisonment of their leaders. Economic war and group rivalry took the place of cooperation in public service.

The main reason for this violent reaction is probably to be found in the fact that our modern democracies, the United States in particular, were born in rebellion against the autocratic authority of the feudal state, the fear and hatred of which still attaches even to our representative government. The memory of the Stuarts and Bourbons and Hohenzollerns is still fresh in the modern democratic consciousness, and accounts for the maxim that the government is best which governs least. The revolutions of the Eighteenth Century transferred much of the autocratic power of the monarch, the keeper of the national treasury, to the owners of property against which the organized labor movement is today in rebellion. But as against the state in which it exercises such autocratic authority as during the war it exercised through such instrumentalities as the Fuel Administration, both groups, owners and workers, unite. They assert the right of self-government within their industry. Like the economists and business men of the Nineteenth Century, they contend that the conflict and balance of their selfish interests will by some mysterious provision of nature neutralize and resolve these selfishnesses to the advantage of the community. But this leaves the service of the community at the mercy of a blind conflict of forces within the industry, as formerly it was at the mercy of force exercised by the monarch who was the state, and the public is increasingly dissatisfied with the result. The conception of industry, and especially of such basic industries as coal, a public service, is rapidly taking possession of public mind. People are coming to see that uncontrolled conflict of forces, like autocratic f itself, is incompatible with the principle of ser Neither will force exercised by the state thro the courts solve the difficulty. Compulsion is trary to the spirit and genius of democracy. great problem of our generation is to discover industrial freedom can be reconciled to the ser of the public. For an answer we shall have to l into the spirit and structure of such governmen our industries have hitherto evolved. For mocracy is not, as its earlier critics declared, sy nymous with anarchy. Democracy is a governm of laws, not of men; and laws in a democracy not emanations of superior minds, but the codi experience of the people.

THE processes of civilization like all cosmic p cesses are slow. So in the coal industry, miners organized slowly, first in local groups, t by districts, then on a national scale with the be nings of international affiliations. They drew gether into unions, broke apart, drew together ag As they acquired strength their interests came conflict with the interests of the coal owners. Th were strikes and lockouts, local joint agreeme then strikes and lockouts again, then other ag ments for arbitration and conciliation, then m strikes and lockouts. That process still goes on in the bitter civil war in West Virginia. But in main it reached a culmination so far as the c industry is concerned when in 1902 President Roo velt intervened in the interests of the consum asserted a balance of power between and over two groups, and established the foundations orderly government within the industry. The p cesses by which representative government grown up within the industry run closely para with the processes by which the parliamentary g ernment arose in the European political states, w property owners performing the very import function of technical organization and developm which in the early stages of national life the m arch and his executives performed, and with miners playing the rôle of the commoners. I upon this historical structure that the future of industry as a public service depends.

FOR the value of coal, as of all material thin finds its true measure not in numbers or ho power units, but in its effect upon the soul of m the fullness of opportunity enjoyed by each i vidual for self-realization and service, the progr of the race toward brotherhood. When we as i viduals and nations and groups of nations set c selves to turn the wisdom of experience to acco we shall build a civilization worthy of a world t moves through infinite space with the sun and marching stars.

The Public Stake in the Coal Industry

By WILLIAM HARD

THE public has two sorts of interest in the coal business. It quite clearly recognizes one of them. For the most part it quite fails to recognize the other.

It clearly sees that it thinks it ought to get its coal at a fair price n if it does not know what a fair price is. There othing more touching than a public which sells ·ything it produces at any price that the market stand and then wants to buy everything it con- es at an ethical price.

shall avoid the word "profiteering." It con- s an ethical reproach. It implies moral indigna- . I cannot see that moral indignation by the lic can possibly have any effect on coal operators. l operators are not simply producers. They are sumers too. They buy things from their fellow- . They buy luxuries and they buy necessaries. y buy land and they buy timber and other things their mines. Buying them, they must be amused moral indignation among their fellowmen against ofiteering."

What free-born American citizen, a dutiful hus- d and a loving father, having bought a piece of land afternoon for six hundred dollars, would refuse sell it for six thousand dollars tomorrow morn- , but would content himself with, let us say, five usand, and rejoice to think that the extra usand was going not to his own wife and chil- n but to somebody's else?

Or what violinist, far above commerce, who ws heaven to earth with the turn of his wrist his bow, learning that audiences this year were ling to pay x plus y dollars an evening instead x dollars, would refuse the additional y dollars the ground that they represented an excessive urn on the cost of his education?

Or what plumber's assistant would recoil from new union wage scale on the ground that it in- equately recognized his ignorance of plumbing? Really, trying to make a coal operator in modern nomic society feel ashamed of "profiteering" is trying to make a fish in the sea feel ashamed water.

It is futile. It is worse than futile. It leads to se expectations. The public ought to abandon se expectations. It would most certainly abandon m if it would just for once examine its own con- nce. It would then see, having noted the work- s of its own conscience in the sales of its own ds, that it is a perfect waste of time to rely on consciences of coal operators as the means by ich the country can arrive at ethical coal prices.

t does try to rely on those consciences today. us propound the question: What is the right ce for a given sort of coal in a given sort of condition in a given market at a given time of the year on a given investment with a given value of supplies and a given wage scale? What is the right price based on cost?

The public at once gets bored. The support given by the public to proposed legislative measures at Washington for governmental ascertaining and verifying of coal costs and coal profits is most ineffective.

The warmth and the drive of the public is for having the Department of Justice do something about it. What is needed in the coal industry is virtue. If any American is without virtue, let justice put it into him. Does he drink wicked drinks? Does he paint wicked pictures? Does he write wicked novels? Does he sell coal at wicked prices? Let him be fined. Let him be jailed. The Department of Justice should jail a couple of hundred coal operators. It would make them good. Then, being good, they would sell coal at two dollars when the market was offering them four.

THAT is the dominant state of mind of the public. The public therefore has no value whatsoever as a factor in the solution of the coal problem except in so far as its moral indignations lead to senatorial investigations.

It must be admitted that it certainly has led to them, and they have brought together certainly a very large and a very useful array of coal facts. Placed end to end in paper bindings they now begin to rival Dr. Eliot's five-foot shelf of books. They are massive and they are pertinent.

We also have the coal facts currently and periodically accumulated and published by the Geological Survey, the Bureau of the Census, the Bureau of Foreign and Domestic Commerce, the Bureau of Mines and the Bureau of Labor Statistics. These facts are principally regarding coal production, certain coal pay-rolls, coal exports, coal accidents, and certain coal prices.

We also have the admirable studies of coal costs made by the Federal Trade Commission during the emergency created by the late war. We also have the highly instructive literary remains of the late Fuel Administration.

But the studies of coal costs came to an end with the passing of the emergency created by the late war, and since that time the ethical fervor of the public has produced numerous senatorial investigations of the general wickedness of coal operators but it has produced no revival of studies of coal costs.

Congress did indeed lately issue a mandate to the Federal Trade Commission to undertake new studies of such costs but the Federal Trade Commission, setting forth to execute that mandate, was interrupted and stopped by an injunction issued

in a federal court in the District of Columbia at the request of a coal company backed by the sentiments and policies of the National Coal Association. Let me at this point introduce an interlude on the subject of coal operators and governmental publicity regarding coal facts.

IN the desire of the devil to be a monk there is said to be a difference between the devil sick and the devil well. The coal industry in the year 1914 was quite sick.

The coal industry—the bituminous part of it which is overwhelmingly the major part of it—is an industry which is likely either to be in bed with acute anemia or else ramping up and down the country too healthy to be talked to. The appropriate life for coal operators in the next world would be to be carried at immense speed on a perilous porous cloud backwards and forwards between a celestial Palm Beach and a celestial poorhouse.

In 1914 they were in a poorhouse cycle of their existence. Then, exactly like farmers when they are poor, and exactly like ship-builders when they are poor, they meditated on the beneficence and the industrial life-saving function of government.

In December of 1914 the coal operators of Illinois and of Indiana sent a "Statement of Facts" to the President of the United States and to the public of the United States.

They said that on one side of them there were combinations of miners and that on the other side of them there were combinations of buyers of coal and that in front of them there were laws forbidding coal operators to combine. They were at a loss to know which way to turn.

They therefore turned right around and demanded governmental publicity. They even permitted themselves the use of the word "control." They demanded "appropriate and definite governmental control at least to the extent of permitting all their activities to be known to the public." They added the word "supervision." They said that "coal operators would not object to, but, on the contrary, would invite publicity and supervision."

They wanted a federal Red Cross nurse and wanted her quick. At that time the price of spot coal on the index chart of the trade paper called the Coal Age was well below the basic level represented by the figure 100. In the middle of 1920 it stood at about the figure 725. It was in 1920 that Congress ordered the Federal Trade Commission to study coal costs anew. The injunction against the Federal Trade Commission followed. The coal operators were now meditating on the banefulness of government and the withering and deadening effect of its intervention in business.

The Finnish Red Socialists used to be in favor of Finnish independence from Russia when Russia was under the Czar. They were nationalists then. Afterwards, when Russia was under Lenin and when Finland was under an anti-red government, they were in favor of union with Russia. They had become internationalists.

I require it neither of socialists nor of coal operators to refuse to fabricate circumstances into p ciples; and for that very reason I do not regar as impossible that coal operators may once a be in favor of publicity and "supervision."

The price of spot coal, having stood at about in the middle of 1920, went down as suddenly it had gone up; and by the end of 1921 it was sta ing (if such a word can ever be used of the p of spot coal in a free market) well below 200. has continued to stand well below it through these first few weeks of 1922.

What Senator Frelinghuysen needs to do simply to pray successfully for more and worse b times: whereupon, in due course, his present r against coal operators for refusing to submit to present very mild measure of governmental sta tical "supervision" will be changed to a warm preciative affection for coal operators as he li his eyes and sees them rushing toward him fr their troubles and flinging themselves for res into his receptive legislative arms.

Concluding this interlude on coal operators a their political philosophy in relation to the price coal, I observe that Palm Beach (or at least Wh Sulphur Springs) is not yet so dim a reminiscen among them as to fail to have a philosophic fluence. Most coal operators are still highly dou ful of the economic value of governmental colle ings and publishings of coal costs and profits.

I DO not blame them. Doubtless, if I were a co operator, I would have to be pretty well pound to pieces by adversity before I would willingly su mit to a governmental publicity of profits if publici was all that the government was offering me.

For just consider what it would do!

In times of low prices the public would pay virt ally no attention to that publicity. It might ju glance at it in order to satisfy itself that prices we really low. Those prices might be so abnorma and disastrously low that the coal operators we making no profits at all and were even enduri losses. The public would be unconcerned. A the government would be unconcerned.

Then would come the next spurt in the coal bu ness. There would be a sudden brisk demand f coal. The market would change from being market dominated by buyers to being a mark dominated by sellers. The buyers would want co badly. The sellers would see a chance for profits last. Presently they would see a chance for b profits. They would start to take them.

Thereupon the public would begin to read t governmental publicity about coal and would re it diligently, with growing astonishment, indignati and final moral frenzy. Just to think of people li those coal operators being allowed to live! Ju to think of that margin between costs and profit That margin! Unheard of! Intolerable! And the midst of continuous governmental publicity r garding that margin the coal operators would b haled to Washington for more probing and pillor ing and unpopularity than ever before.

other words publicity by itself—publicity with- other measures along with it—would tend to ive coal operators of their abnormally high ts without doing anything at all to give them compensating protection against their seasons cycles of abnormally low profits and losses. bargain is no bargain, and I do not blame coal ators for recoiling from it, because I meet few le who pine for things which seem immediately dvantageous to them.

EVERTHELESS, since the coal business is indeed a basic business, and since its terrible uations of prices are indeed a great public ance and a great public burden, and very up- ng to other businesses, and also to householders wish to keep warm in winter, it follows that the lic will necessarily be interested in coal prices; no matter how unintelligently, it is certainly rested when it *is* interested—vigorously and stically and disturbingly—disturbingly to the business; and therefore from the standpoint of operators as well as from the standpoint of the lic it is most desirable that some bargain really truly a bargain should be found as soon as sible.

pass over the bargain which would consist of ing the government buy out the owners of the es and turn the coal business into a nationalized iness. I fear very much that President Harding, r profound consideration and reflection, would that it was his duty to veto such a bill. It is at this moment exactly a feasible political position.

Any bargain to be consummated at this time be- en this nation and its coal business has to assume continued existence of private coal mine owners of private coal mine operators. They are well resented at Washington. They are by no means powerful at Washington as the farmers but they considerably more powerful than the United ne Workers. They have been able to argue ngress out of passing any of the proposed recent publicity bills. Ways can be found of drafting h bills in words which will make them immune injunctions in the courts. That difficulty can be rcome. The resistance of coal operators to licity—their personal and political resistance— greater difficulty just as long as that resistance o solidly grounded on such compelling conditions hin their industry.

The question is, is there any meeting place—re- ding those conditions—between the interests of coal operators and the interests of the public? In seeking an answer to that question it becomes tinent to remark that if the public is distressed the fluctuations in the coal industry and in the l market it is also true that the coal operators not especially rejoiced by them. A business life sisting of balloon ascensions and of parachute cents leaves much to be desired, particularly en one is never really certain that the parachute oing to open and hold.

I therefore note without surprise nowadays that within the coal industry there is a certain amount of envious comment on the good luck of the farmers of the United States in getting their cooperative selling societies further legalized through the Capper-Volstead Law. One of the coal trade papers wishes that in Washington there was a "coal bloc." It points out that wheat growers may combine to sell their wheat and so to stabilize wheat prices, whereas (lamentably) the sellers of coal are forbidden to combine and so are prevented (in that degree) from stabilizing the prices of their equally meritorious product.

It must be said that in the anthracite part of the coal industry there is little reason for any of this grieving contrast between the misery of coal operators and the new happiness of farmers. In the anthracite part of the coal industry the limited area of the ground containing the anthracite deposits has permitted a quite high degree of combination and consolidation in spite of overshadowing clouds of legal and of popular disapproval.

In the bituminous part of the coal industry geology has enforced the Sherman Anti-Trust Law. The deposits of bituminous coal are so scattered and the area containing them is so enormous in the total of its scattered hill-sides and prairies that combination and consolidation under legal disapproval have not been able, and give no signs of ever being able, to proceed to any stage worthy of being called a stabilization of the industry.

The competitive quality of the bituminous coal industry is one of its most outstanding qualities. Even a member of the "farm bloc," believing sternly in competition in the coal industry, ought to be satisfied with the amount of competition generally and normally exhibited by the coal industry's bituminous section, which is its big section, its dominant section, its relatively permanent section, destined to be producing coal in unabated volume when the anthracite section consists of exhausted and abandoned caves.

In the bituminous section of the coal industry it can and does happen that by the time the public has noticed a spurt upward in the price of coal, and by the time it has got its senatorial investigation of the spurt going, the spurt may have stopped going and the price of coal may be tumbling and it may have tumbled so far that bituminous coal trade papers may be admonishing and advising coal operators on the subject of how to avoid selling below cost.

BITUMINOUS coal operators would naturally not be indisposed to have an industry rather less thrilling. They would not mind a little stabilization in the coal industry now and then. Some other industries have become somewhat stabilized. There is the steel industry. There is that great industry, the raisin industry. There is the anthracite coal industry. There are other industries in which, as in steel and as in raisins and as in anthracite coal, by joinings for sales, or by joinings also for investment and for ownership, a certain stabilization has been brought to pass.

In such industries a full, continuous, current gov-

ernmental publicity of costs and of profits could not reasonably be resented. In such industries the promiscuous blind competition which in bad times drives holes into the bottom of the market and lets the industry down through the holes is provided with a check.

The check is the reduction in the number of competitive units, so that these units have some knowledge of one another's activities. Or it is the presence in the industry of some one great steadying corporation, which does not need to sell below cost in order to get a little ready money. Or it is a gathering of competitive producing units into a cooperative selling unit handling some considerable percentage of the total output of the industry and able therefore to look buyers in the eye without getting instantly and entirely intimidated by them.

There is some check, whatever it may be; and, whatever it may be, it is in each case a variety of cooperative effort and it is widely enough extended to stop up a considerable number of holes in the bottom of the market and to prevent the industry from falling to the level which the bituminous coal industry was occupying in 1914 and which was so bitterly narrated to the President of the United States by the bituminous coal operators of Indiana and of Illinois.

Suppose, then, that a freedom of cooperative selling, mildly similar to the freedom granted to farmers in the Capper-Volstead law, were offered to—or imposed upon—coal operators. Suppose that a certain degree of cooperation and of combination, by certain methods and within certain limits, were legalized throughout the coal industry in both its sections, anthracite and bituminous. Suppose that the activities of the cooperating persons and combined persons were subjected to a publicity which also would include the investments, the costs, the prices, the profits, existing and current in the whole totaled industry. What would happen then to the public's interest in an ethical price for coal?

I venture to maintain the thesis that then for the first time the situation would exist which would make it possible to ascertain and to promulgate an ethical price for coal.

The public today asserts its interest in righteousness between the coal industry and the buyers of coal. It asserts its interest in ethical relations between the industry and the public. It does not perceive its other interest in the coal industry. That other interest is in logic the first interest. The public, if it wishes an ethical relationship between itself and the industry must permit or must compel an organization of the industry; because no individual, in and by himself, and ungrouped with other individuals, can in practice even know what is ethical.

He can guess. His neighbor can guess too. Each person in the industry can guess. Each member of the public can guess. And when all the guesses are added together there is no validity in the total and there is no moral obligation in the total and the normal average person in the industry discard[s] the guesses and proceeds by the market.

An ethical price—like an ethical anything el[se] is in practice, among human beings in mass, a s[o]thing as well as an individual thing. In practic[e] fact, it has to be social before it becomes effect[ive] individual. There has to be a social sanction fo[r] Only an age which dreams that an individual live without sanctions could dream that in an organized coal industry the individual coal opera totally surrounded by totally unethical condition unrestrained killing competition, could all by him reach out of those unethical conditions and by own moral nature suddenly discern and devise maintain an ethical relationship with the public. I only such an age could dream that even in a q considerably organized coal industry—in the anth cite coal industry, for instance—there could be ethical system developed by the industry toward public when on the side of the public there is system toward the industry except a general position to try to push it back toward the condit which bituminous coal now so chaotically occup and illustrates.

I do not stress the suggestion that there sho be cooperative coal-selling societies. I do not str the suggestion that there should be district pool[s] of coal or allocations of coal or distributions markets under public surveillance. I do not str any other of the numerous suggestions existing the literature and in the conversation of this subje I only submit that an ethical price of coal implie sufficient organization of the industry to give it certain common consent regarding its own conduc and implies simultaneously a sufficient organizat of public governmental knowledge to give the g ernment and the public a known and a defined me ure of the conduct of the industry both within its and toward the public.

Today the public has a passion for ethical c and at the same time a great disinterest in the s of public governmental knowledge necessary and great hostility to the sort of industrial organizat necessary. It wants neither proletarian nor capit istic organization of concerted action within the dustry. It wants ethics without a social structu for ethics. It wants, one might say, no huma organization interposing itself between the co operator and God. It wants the coal oper tor by direct revelation from the inner lig within him to be good and to know the right pr and charge the right price for each ton of fifth ve Indiana screenings in the Chicago market irrespe tive of other coal operators, irrespective of the fa that the customer may be and probably is a co tinuous profiteer on his own account in his own bu ness, and irrespective of the fact that while t public is worried by the operator's wealth it is nev worried by the operator's bankruptcy.

I calculate that just about the first step in i proving the behavior of coal operators will have be improving the behavior of the public.

THE MAN ON THE JOB

WORK PORTRAITS

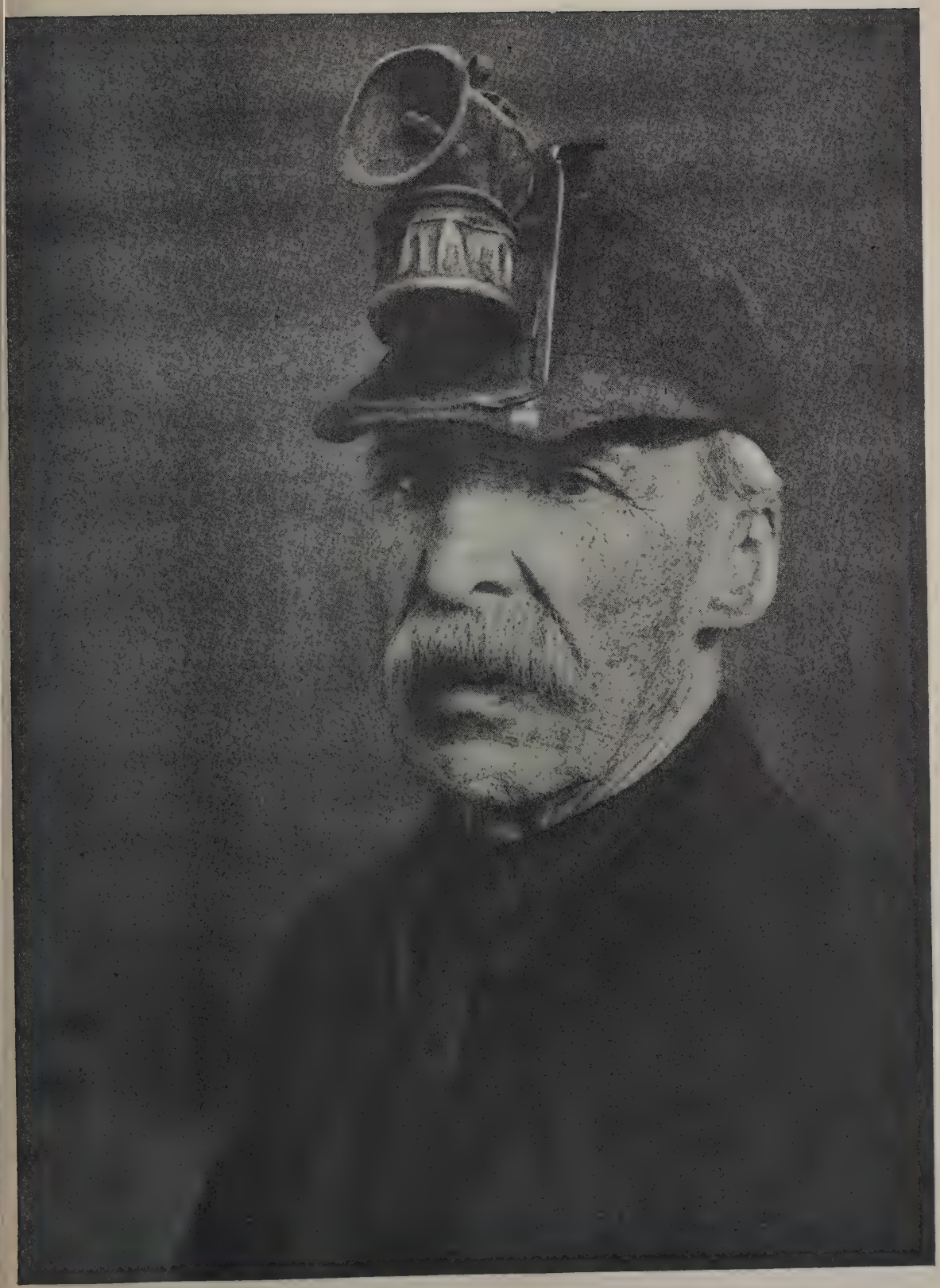
BY LEWIS W. HINE

AN ANTHRACITE MINER

*'LL the workers bear a trademark the in- ible blue scratches or ches on brow, nose, eks or wrists bitten by some errant knock inst coal. Occasionally entire face will look e a decayed eggplant, en to the whites of the s—color blown in by ne delayed powder blast. Risk and isolation, in eater or less degree, at- d every job as you name em over: The "fireboss," o, at three in the morn- g scuttles through miles mine, with only the mine rats for company, hunting with s lamp for gas and chalking up in each working place the gn of danger or safety for the miners who come down at or seven * * * The "shot-firer," (in mines that require m) who, after the miners depart, hunts the holes they have illed in the coal, fills them with powder, tamps and "blows" em—an extra-risky job * * * The "contract miner," say, in anthracite mine with the coal vein running almost ver- ally, who with his laborer or helper climbs hundreds of et up the wet manways to the "breast" where they fetch wn the world of coal above them – not on their heads if ey can help it. The "consideration miner," who works a mpressed air jack-hammer or an electric or hand drill o coal, slate or rock and blasts it down to clear the ace for the contract miner * * * The "company miner," o doesn't mine coal so much as rock, to clear a way the coal, and struggles with props and "forepolling" d other devices for holding up the roof which is always orking" a little, cracking, falling in isolated tons.*

*IN bituminous mines, with the veins mostly horizontal: The "machine man," with his "scraper," or helper, who operates an amazing brute of a machine—like a sea turtle with a sword fish's snout and spinning chains in and out of itself like a spider; it rips a six-foot "undercutting" across the face of the coal, a racketing, stifling job for its sweating attendants * * * The "pick miner" who, postured on his haunches or his side or his belly, hacks a "mining" (undercutting) and so gets out two hundred million tons of the country's annual output * * * "Loaders" and laborers who shovel and strain every muscle pushing the cars * * * The driver, with the mules, and his "spragger" jerk the cars, here a couple, there some more, out of the entries to the main haulage ways, where the "motorman" and his "trip rider" rattle the "trip" (train of cars) for miles through the dark, ducking their heads away from roof timbers and the trolley wire. If it's a shaft mine, the "bottomers" get the loaded cars on the hoist and the "empties" off; at the top, the "cager" and his helper get the loaded off and the empties on. If it's an anthracite mine, the trips all lead outside to the "breaker," a factory-like place where the "breaker boys" squat alongside conveyors and chutes, picking out slate and other refuse. But down below in any mine, hundreds of men are scattered on other lonesome jobs: pumpers or "brattice men" (building barriers in air-courses) or "trappers" (boys tending doors); "timbermen," "track layers" and all sorts of "company men." Brute-work, most of it. Lonesome.*

Sixteen-year old Llewelyn is a runner in and out of a mine



Henry Cook has mined for sixty-three years. As a lad he carried coals at Newcastle

Sam Cook, son of Henry, has mined for twenty-two years and is president of a local union

Czecho-Slovak pick-miner

The motorman. The flame of his old style lamp cannot be quenched by the wind around dangerous curves

My Fire Burns

By SHERWOOD ANDERSON

AT one time in my life I lived for nearly a year in mining towns, going from one of them to another and doing the work at which I then made my living, and the experiences of that year did something to me, left on my sensibilities a kind of raw ler place that has never quite healed. A great l of water has run under my particular bridge e that year but sometimes yet I awake at night find myself in imagination again on the main et of one of those towns and feel again, in the nan beings about me, a kind of dreary horror of unmatched anywhere except in the most dismal n streets of our cities.

During the night, it is true, such towns, seen n some nearby hill, have a kind of magnificence. walks from the hotel, through the main street, stores, and in the old days past saloons. Nowys I dare say the saloons have become bootging establishments with a frontage of bottles grape juice and Coca Cola and I dare say their prietors are more prosperous.

ome ten or twelve years ago, however, they e poor enough places. And over the goods on shelves of the general store, as over the faces he idlers in the saloons and the sheets in the s at your hotel, lay a fine, thin film of black dust. se millions of tons of "black stones that burn," ed so violently up out of the ground and hurled e and there in long trains over the country to ant towns and cities, had not come out of ground nout protest. They had at least left this inceable trail of black dust behind. It was everyre, on the little patches of grass that tried to ggle up out of the ground beside the miners' ses in the spring; on the leaves of the poor ased-looking trees scattered about; in the little ses under the eyes of children; in the hems of garments of the women; in the hair and beards he men. The little nerves of the nostrils be- e coated so that there was an almost permanent ing of the sense of smell and one constantly ed coal dust in the food at the hotel.

When at night, however, one had got through town and had climbed by a winding earth road the hills, one looked back with a little gasp of nishment that a thing seen near at hand could so dismal and dreary, and at a distance and at nt so magnificent. Perhaps one is destined to always, when one stands a little away and looks t, these two distinct impressions of every aspect our industrial age. Always there is this feeling he futility and the apparent meaninglessness of vidual lives against this background of some- g huge, uncontrolled and diabolically strong, mping over the land and leaving this black trail dust behind.

We are in the hills above a mining town and it is night. In the darkness the sense of black dust lying over everything is lost. As we stand looking down the main street, the stores with the dirty, dust-covered windows, the miserable shed-like houses and the black faced men tramping homeward through the streets are lost to sight. Of the mining town in which these men and women are to live out whole lives there is nothing left but the street lamps that now look like fireflies in the soft darkness below.

And the mines. The mines make themselves felt even in the darkness. If the coal that comes from the mines in the town above which we stand is coking coal, there are also the long lines of coke ovens stretching away to the right and left and making each a soft glow of light in the darkness.

Noises arise. There is the rattling bang of a half carload of coal that goes roaring down from the tipple. Engines are shunting coal cars about. They have a great rattling machine, larger than a miner's dwelling, that is bouncing and sorting the coal in a long shed perched high in the air above the mouth of the mine. One gets sharply the sense of something huge breathing down there. The imagination leaps across the little space between sanity and insanity perhaps. At any rate the miner, the individual man or woman in the town below, becomes lost. He is now as indistinguishable as an ant, one of the swarm of ants that scurry away in all directions when you have kicked over an ant hill in the fields. Now and then, it is true, a human may be seen, even at this distance. There is a glare of light from the headlight of a locomotive or from a torch burning beside the tracks, and across the little patch of light his dark figure flits.

There is no doubt something living there. Buried away under the ground men are boring and digging and blasting. There is even another railroad beneath the surface of the ground. In the darkness the rows of coke ovens are like the glistening teeth of some giant. Something sleeping in the ground under the hills is being troubled in his inner digestive parts and is ill. The giant is being made to spew forth coal that men in a million houses may be warmed on cold nights and that factories may be run both day and night in many towns and cities. As the Rotary Club member would say, "the old pep is being put into the modern industrial world." How sad that the process of doing it should involve all this dreariness, this thankless labor and this endless breathing, eating, and wearing like a veil over the garments this thin film of coal dust.

As for myself, I suppose there is something in me that perversely will not see splendor where splendor is so obviously intended. Since boyhood I have been told—first by my own father and by the older men of my home town in Ohio, the men who were interested in me and did want with all their

hearts to set me going straight in life, and later by other men I met everywhere, in the cities and on trains and in the pages of magazines and newspapers, and even by men of the colleges—that all of this roaring noise, this breathing of smoke and black dust, this quick throwing up and tearing down of cities, this thing we so grandiloquently call America's Industrial Progress, is a thing of meaning. Ye gods of darkness get ye behind me. Give me eyes to see into the darkness at the foot of this hill. To me the whole thing has no meaning at all. I am unconvinced that mankind is going anywhere by this road. Show me wherein all this tickling of the lining of Earth's stomach until he becomes ill and spews forth these millions of tons of coal, wherein all this endless blackening of lives has brought anything at all of light or beauty or meaning into the life of miner or mine owner, factory worker or stockholder in the shares of factories, and by my ungrown beard I swear I shall join the Elks, the Rotary Club and all the Progress Clubs that will have me and for the rest of my days shall write nothing but pep editorials for Chicago or Detroit newspapers.

SOME evil fate I suppose it is that has made me so bad an American. I myself came from a town in Ohio that has not, at the time I write, become the stirring industrial center its Chamber of Commerce would like to make it. But all about it are towns that have been more successfully ambitious.

I have in mind now such a town. How few years ago it was an American village inhabited only by ex-farmers, by artisans, by a few professional men, doctors, lawyers, and the like, and by the merchants. And what another thing altogether it has become now.

It happened that I saw life in the town in the days before the factories came and before mountains of coal lay heaped beside the railroad tracks.

The older life in such an American town of the Middle West was not, I suppose, ideal but I have always had the feeling that something I very much value had begun to grow there before it became choked with coal dust. Van Wyck Brooks, Waldo Frank and others who have analyzed the influence of such towns have not told all the story. A little there was recognition of the rights of the individual to his idiosyncrasies. Queer Rabelaisian old fellows who knew how to laugh and how to arouse deep laughter in others abounded. In the stores and on the streets in the evening men talked of baseball, horse racing, the best and fastest way to husk corn, and how was the best way to get along with a woman. And there were among us not a few men who had a love for books and learning.

In the town of which I am now speaking I remember there was an old man who had come there to rest from his adventures. Why he came I can't say. He had been some sort of office holder in the South during the reconstruction days after the Civil War and had, perhaps, made away with unlawful money which he thought had better be spent in an obscure place.

There was a kind of rascality in him, no do
Into his old eyes a wicked gleam came at times
I have walked with him and have seen how
figure of a handsome woman in the street m
him strut like an old turkey cock, but he did l
books and knew well his Shakespeare, his Bur
Milton, Goethe and Keats. To his house I w
sometimes on summer evenings with other fello
of the place, mere fledgling boys like myself,
sit upon the front porch and to be his guest.

The house stood with its back to a small ri
that made a murmuring sound in the quiet eveni
and at the end of a residence street and from t
front porch we could look down, a half doz
blocks, into Main Street.

We gathered there on summer evenings to he
the old man spout poetry and we did not bring o
"girls," the event being, we felt, a sort of "m
only" affair.

The old man, who, perhaps, secretly regretted
had not become a Keene or a Booth rather than
carpet bagger, was given to moments of a sort
Rabelaisian broadness of development of the then
touched upon by the poet. He had little patch
of white hair brushed forward from the back
his skull and as he walked up and down under
hanging lamp inside the house and behind a scree
door he made a great business of running his hanc
through it.

One gets inevitably a sharp contrast between thes
nights and later nights in the hills above minin
towns and in the streets of roaring, hustling indus
trial towns. For one thing there was leisure. Th
sleeping giant had not really been disturbed in hi
bed under the hills and had not yet set out upo
his conquests.

And in the meantime, on the porch of the ol
man's house we lads sat, mightily impressed by hi
learning, and from inside the house came the cadenc
of the words of the poets.

Before us lay the short residence street and at the
end of that the main street. The Ford and the
movies, products also of the Age of Progress, of
the Age of Coal, had not yet come and automobiles
of any sort were a rare sight.

We sat, you see, not thinking, but having the
songs of old singers poured into us. In all the
houses along the streets lived people my companions
knew. Even at that distance, when a man or woman
went across the patch of light that marked the
debouchment of the residence street into Main
Street, he was known to the young men sitting about
me by his gait, by the way he carried his shoulders
or by a peculiar swing of the arms. There came a
pause in the old man's proclaiming of the verses
of the poets. One is somewhat loath to mention
such details to sensitive readers but the truth is the
old man was a great chewer of finecut tobacco and
had a spittoon in the front room of his house beside
the table on which his books lay.

"Well, now I am going to read you one of the
greatest poems ever written in our language." He
always said that, no matter what poem he was about
to read. He paused to put a fresh quid of tobacco

p his mouth and to tuck it away out of the track
his tongue. Did not Demosthenes put little
nes so, when he spouted poetry by the seashore?
n any event there was a period of silence and
that moment a man passed through the spot of
ht at the end of the street. "There goes Ed
ousey. His girl Emma has got into trouble. I
you what, Will Tuttle will have to marry her
w," said one of my companions.

I remember that after such an evening we
ungsters walked home rather quietly in the dark-
ss. I boarded at the house of one Trundle, a
umster, and had to go the last three blocks alone.
he man spent his days out of doors doing heavy
rk and except on Saturday evenings the house
as early silent and dark.

PERHAPS I romanticise this whole matter. I
can't quite make out. It seems to me now
at, as I stumbled forward over uneven sidewalks
the darkness and sat afterward in the darkness
n the Trundle's front porch looking at the blue
ack summer sky and listening to the occasional
ght noises, the barking of a dog or the sharp
und of hoof beats on a distant road where some
ung farm hand was hurrying homeward after a
ght in town with his girl; that at such moments
mething happened to me more deeply significant
n my own life than any number of millions of tons
f coal mined in a year, the profits and losses of
al mining companies, or the wage to be paid
iners. For an hour I sat and it seems to me that
n that hour and by way of the old carpet bagger
mething came floating down to me from many
en of the old times who on distant hills and in
he streets of cities of an older world had made
ongs that now were being resung within me. Sen-
ences that when the old man read them had not
ssued clearly from among the march of many sen-
ences now stepped forth and got themselves looked
t and listened to. My lips reformed the sentences
he lips of men now dead had formed and, perhaps,
caught a little the rhythm, the swing, and the sig-
ificance of them and I am sure something of the
ame sort must have happened to the other lads
who had spent the evening with me in the company
of the old man. I was at that time intent upon
earning the mysteries of the house painters' trade
and as I went through the streets on the next day
clad in my overalls I perhaps met one of my com-
panions of the evening before. We stopped and
stood talking for a moment, then he threw his arms
above his head and began stretching and yawning.
"I didn't get to sleep very early last night. After
I went to bed I got to thinking and couldn't sleep
at all," he said.

The whole point of which meandering tale being,
I think, that it is entirely possible that we Americans
may some day awaken to find we have long been
traveling a blind trail toward fulness of life. It
is true, isn't it, that what we want is leisure, a
chance to live more fully? Does not the preamble
to our Declaration of Independence say something
about the pursuit of happiness?

For my own part the people I know and love all live in industrial towns and are all in some way slaves to that giant we have disturbed in his sleep under the ground, disturbed without really putting the harness upon him. I rather expect I shall myself live and die in such towns and I do not like the prospect, even though I may care greatly for the people who are in the same fix as myself. Things have moved with unbelievable rapidity in not only one but a thousand towns of Mid-America since I sat with my comrades on the porch of the carpet bagger's house and heard from his lips the voices of poets. Within the year I have revisited that place.

On the particular street along which we looked on the summer evenings, now stands a long row of factories, their grim walls reechoing at night to the footsteps of a new kind of men. It is quite true and must not be denied. The America of today is not the America of a very few years ago. As to the future America: Can a youth spent at the movies, spent whirling through the streets in motor cars or in the grim residence districts that almost inevitably grow up about factories in our towns or cities be of the same quality as the youth of the last generation? Surely not. I do not deny to this newer youth its quality. Perhaps the only trouble with me is that there is something here I cannot digest. You see I'm only asking questions after all.

AND there is one question keeps coming back and back whenever my mind gets on this subject. It seems to me that love has much to do with the fibre and quality of men as citizens of a country and the whole matter of hustling, pushing, coal-mining, factory building modern life for the most part remains in my mind in the form of annoying and to me unanswerable questions. I find myself going about day after day and asking myself such questions as these: "Can a man love a coal mine or a coal mining town, a factory, a real-estate boomer, the Twentieth Century Limited, a Ford, a movie or a movie actress, a modern daily newspaper, or a freight car? If a man live in a street in a modern industrial town, can he love that street? If a man does not love the little patch of ground on which his own house may stand can he in any sense love the street, the city, the state, the country of which it is a part?" The questions are disquieting. The love of country is to my mind a necessary part of a full and happy life and one does not like to think that love of country may in the end be a thing like modern religion, occasionally pumped into temporary life by political Billy Sundays and by propaganda in the newspapers.

Well, one writes freely when one writes what one feels and my own feeling is that coal and the industrial power that has come from coal and the coal mines is now king here. The black giant, disturbed in his sleep, has set forth and has conquered. We all breathe his black breath.

Also I believe that self-respecting men, once they have accepted a town or a country as their town or country, do want to bring something like beauty into the place where their lives are to be lived and that

in this king there is as yet little beauty. Having been disturbed in his bed in the hills he has set out, hun-like, to conquer and will conquer. Even as I write, he is on the march with a vanguard of Rotary Club members, invading new towns, building newer and larger cities, breathing his black breath over greater and greater stretches of green country.

The king is, I admit, King.

What a laughter the word democracy must sometimes stir within his black bowels!

. . . . . .

MAY one be ribald when a King is being crowned? It has long been my desire to be a little worm in the fair apple of Progress.

As I sit writing and feeling very important and serious about this whole matter of what coal and industrialism is doing to the towns of the Middle West, I do have to stop and for a sane moment think that I know little of the matter about which I have made all these words. And it happens I am at this moment sitting in one of the few spots in America where coal is not king.

Perched out on the lip of that Mississippi River that drains nearly the whole of Mid-America, there is a city within a city. Where the new and modern city of New Orleans begins, some ten city blocks away from where I sit, the king is King; but in this old French and Creole town, hidden away, half forgotten in its corner, we can make him sing low.

It is afternoon and cool here and the night will be cooler. I shiver a little as I sit writing of that Coal King who is making so many great fires burn in so many places. I look at my empty fireplace.

From the street there comes a cry that is also a song. I run out on my little balcony and look down. A ragged Negro is driving a bony horse along the street and to the horse is hitched a wag with wobbly wheels. There are, perhaps, a doz bushels of coal in the wagon and the driver h made himself a song.

"Do you want any coal?
It's gwy'an be cold.
Do you want any coal?
It's gwy'an be cold."

Is he one who sells three buckets of coal for tw bits or does he give but two? There is a mome of intense mutual inspection and then from a windo on the floor below my landlady comes to my rescu She speaks sharply a few words of Creole Frenc and a delightful grin spreads over the black fac "Sho, boss. Three heapen ones," he says an comes up the stairs with my portion of fire an comfort in a broken bushel basket on his shoulde He is proceeded by my friend the landlady who ha brought an old iron tub to sit beside my hearth an hold the coal.

And so all is well. One sits and contemplate mankind and such things as social progress or deca with a calm mind.

Why not? My fire burns! The King has bee humbled.

The King is in a washtub and I burn his bones

A delightful thought comes. In the end the Kin may lose the battle, after all. It would be a de licious outcome of the whole affair if, gradually year after year, an ever and ever increasing number of men should decide that the spoils offered in the King's service were not worth the price o service and should manage in some way to get the king at last into a place where he is compelled to coo him softly like a suckling dove, as he does here in this forgotten spot where Progress in unknown.

Fires

By WILFRED WILSON GIBSON

SNUG in my easy chair
I stirred the fire to flame.
Fantastically fair,
The flickering fancies came,
Born of heart's desire:
Amber woodland streaming;
Topaz islands dreaming;
Sunset-cities gleaming,
Spire on burning spire;
Ruddy-windowed taverns;
Sunshine-spilling wines;
Crystal-lighted caverns
Of Golconda's mines;
Summers, unreturning;
Passion's crater yearning;
Troy, the ever-burning;
Shelley's lustral pyre;
Dragon-eyes, unsleeping;
Witches' cauldrons leaping;
Golden galleys sweeping
Out from sea-walled Tyre:
Fancies, fugitive and fair,
Flashed with singing through the air;
Till, dazzled by the drowsy glare,
I shut my eyes to heat and light;
And saw, in sudden night,
Crouched in the dripping dark,
With steaming shoulders stark,
The man who hews the coal to feed my fire.

——From the Collected Poems of Wilfred Wilson Gibson, by courtesy of Macmillan Company.

Courtesy C. W. Kraushaar Galleries

THE COAL MINE
From the etching by Frank Brangwyn

"Mining operations cover whole counties and ascend river valleys to their source"

The Black Avalanche

By WINTHROP D. LANE

LESS than twenty years ago parts of those vast stretches of low mountains that cover so much of West Virginia slumbered in solitude. The traveller rode horseback up the stony beds of mountain streams and sought shelter at night in a lonely settler's hut or on the slope of the inhospitable mountain. Forests of oak, ash, cucumber wood and poplar covered the hills. Bears lumbered through the wilderness and wildcats howled at night. No railroad had yet penetrated the region. People lived in small groups here and there in the valleys; life on the whole was simple and devoted chiefly to agriculture. The earth reposed peacefully.

Today, in traversing this region, you pass coal-mining village after coal-mining village. As you ride up the valley of the Guyandotte River, or through McDowell, Mingo and other counties, where the hills stood in untouched quietness two decades ago, evidences of the transformation are on every hand. The houses of those who work in the mines are never out of sight. Large mouths gape blackly at you from the hillsides. Gaunt tipples, headhouses and other buildings stare at you from the slopes of the mountains. Railroads send their sidings in many directions. Long lines of squat mine cars run along their narrow gage tracks and disappear around the curves of the hills. The earth is scraped and ugly. The blackness of coal is over everything, and mounds of fine coal stand about. Peacefulness and quiet have departed.

"We think coal and live coal," said a circuit court judge to members of Senator Kenyon's committee visiting the state recently. "If you take our coal from us, we shall go back to the days of the bob-cat and the wilderness. Coal is our existence."

This change underlies all that is going forward

at territory today. The conflict over unionism has invaded these peaceful valleys has made familiar through bloody scenes. Another gle has recently transcended it in the lives of e who inhabit the coal region: the struggle with nployment. To the miner his employment in mines is the only way of making a living. Min- operations cover whole counties and ascend valleys to their sources. They supply what- opportunity for a livelihood there is. Oc- nal jobs may be found elsewhere, but they are portant and few. If a considerable number mines close down, whole towns sit around idle. coal fields of West Virginia comprise an area er than Rhode Island, Massachusetts and Dela- e combined. Any general search for other em- ment would lead to a small migration.

have just returned from visiting parts of the e. In some places production has remained ly normal, but in others the mines have worked e for more than a year. I looked into family oards that contained food for only a single l. I saw the haunted look in the eyes of men did not know how they were going to provide the immediate wants of wives and children. s have been killed so that there might be fresh t, although these were the only source of milk babies. Children are staying away from school use they have no clothes and shoes. Families had something saved up have helped other ilies; communities hitherto dependent upon coal e become dependent upon charity.

EFORE describing this situation, let us see what ind of civilization lies back of it. The story he exploitation of West Virginia's coal resources ramatic. When Thomas Batts and his few com- ions pushed their first sturdy way into this ress of nature, they had no conception of the t treasures that lay around them. Not until er explorers in 1742 saw "creeks full of coal" the first record written of the existence of this eral wealth. George Washington, surveying d in 1770 in what is now Mason County, saw a le hill on fire." Settlement for long was slow. neers, migrating from the eastern valleys and n Maryland, New Jersey and Pennsylvania, nd the hills of West Virginia inaccessible and tile. In the neighboring states of Ohio, Indiana, Michigan, farms were cleared and towns es- lished before West Virginia became peopled. late as 1830 or 1840 the inhabitants of that e could still be found tilling their acres, tanning her for their own shoes, making their own ead and wax, preparing flax and wool for their cloth and carving dishes and bowls from blocks cucumber wood and yellow poplar.

No use was made of coal at this time except by ssroads blacksmiths, who employed it in their e shops, and by frontier settlers who dug lumps it from the outcrops of seams near their cabins placed these on the logs with which they had d their fireplaces on winter nights.

n 1835 Samuel P. Hildreth published the first observation of the coal strata of West Virginia. Richard Cowling Taylor, the "father of English geology," visited the state in 1848 and described "that magnificent, central, elevated region within whose borders slumber in undisturbed darkness untold millions of acres of coal." Not until the few years just before the Civil War were corporations formed for mining this coal. These were few and unimportant, however, and the war put a stop to their operations.

About 1870 development began in earnest. Then people who knew the great value of West Virginia's coal deposits began to call this to the attention of outside capital. West Virginia advertised her wealth. At the Centennial Exposition at Philadelphia in 1876, she "surprised the world," we read, "with the exhibit of her natural resources; and the thousands of dollars she thus expended resulted in the investment of millions within her borders." In the earlier operations the leading part had been taken by West Virginians. Now outside aid was sought. Companies were formed on every hand. Land was bought in large quantities. Tracts of it were still held by descendants of original grantees from the English crown and these suddenly found themselves wealthy. On a scale hitherto unimagined corporations sprang into existence. Many of these had no intention of mining the coal themselves, but planned to lease their land to others who would do it; this practice is common in the state today. Some of the land was bought by railroad companies, who wanted it for the coal that it held as well as for rights of way. Manufacturing establishments in northern cities acquired some of it for their own future supplies of fuel; public utility corporations did the same thing. But by far the greatest number of companies planned exploitation for the general market.

This rapid development passed by certain parts of the state. A modern coal mine is useless until a railroad runs to its very door. The first roads into the state, the Chesapeake & Ohio, the Baltimore & Ohio, the Norfolk and Western, left many districts untouched. Logan County had no railroad until 1904; today it is one of the most productive counties in the state. Other regions were almost as late in being opened. Mines, mine towns, mining corporations, labor unions, the problem of unemployment—all are new. Many localities are going through processes today that were typical of the older Pennsylvania regions fifty years ago.

Miners came into the valleys with a rush. Welsh coal diggers from the pits of Kidwelley; Englishmen from Lancashire; Belgians from the coal basins of Hainaut and Liege; these mingled with much larger numbers of Italians, Slavs, Austrians and Poles. The hills of the state resounded to the languages of foreign lands; more than thirty nationalities are represented among the workmen in these mines today. Americans, however, outnumber the foreigners. They have come from the coal fields of Ohio, Indiana, Illinois, Pennsylvania and other states. Negroes from the Southern cotton fields have found employment in the mines. And,

not the least, the mountaineers of the state themselves. Watching the mines creep nearer and nearer to their cabins, they have looked with foreboding at first and then, realizing the futility of any effort to stand aside, they have shouldered picks and entered the mouths of the black tunnels.

The romance of the story is in part its size and in part its suddenness. Take McDowell County, which was described two generations ago as "comparatively unpeopled;" on her hillsides sheep were raised and wool was grown. Today mines line her valleys and her annual production of 18,000,000 tons of coal places her first in output among the counties of the state.

Meanwhile, "much of this country is owned by non-residents," writes the historian. The few facts that are known as to coal land ownership show the magnitude of some of the interests involved. The Norfolk & Western Railway Company owns nearly every share of the Pocahontas Coal and Coke Company. According to the annual reports of the railway for 1902, when this control was acquired, the Pocahontas Coal and Coke Company owned 295,000 acres in the Pocahontas field, or "about four-fifths" of that field. This is a leasing concern. A large number of mining operators are engaged in extracting coal from its land. Another large holder is the United States Steel Corporation. Through subsidiaries this corporation owns more than 53,000 acres of coking coal land and 32,000 of surface coal land in Logan and Mingo counties combined, and leases 63,000 acres in the Pocahontas field.

II

LET us see what kind of civilization has resulted. The typical coal mining town is not a town in the ordinary sense at all. The place where the town stands is the point at which a seam has been opened, buildings have been erected and machinery has been installed. The dwellings that cluster about the tipple or straggle along the bed of the creek are not occupied by the self-dependent citizens of a community which gives many opportunities for employment and presents a variety of facets to the world at large; they are occupied solely by the men who work in the mines. The town is the adjunct and necessary convenience of an industry; if the mines should disappear, it, too, would cease to exist. It is not even called a town in the language of the locality. It is called a camp.

No one owns his own house; he cannot acquire so much title to property. No one runs a store, operates a garage or sells groceries or haberdashery to his fellow townsmen. No one amuses them in a movie theater. There is no Main Street of small independent businesses, owned by different people, and making up that mosaic of commercial life that is typical of villages everywhere. There is little if any participation in common, group activities. No body of elected councilmen ever passes on repairs for roads, no group of people ever gets together and decides that the old school house is too ramshackle for the children or that the old church needs repainting. No family physician builds a successful practice by competing with other physicians. No lawyer settles disputes over property rights among his neighbors.

It is not quite accurate to say that no one does these things. The coal company does them all. It owns all the houses and rents them to the miners. It owns the store, the pool room, the movie theater, and often helps to build the school and the church. It often owns the Y. M. C. A. building, if there is one. The company employs the physician and collects a small sum monthly from each miner to help pay him. Sometimes it supplements the salary of the teacher and assists the minister in making both ends meet.

The company owns all the land and everything upon it. It therefore controls the life and activities of the little community. It is responsible for the sanitation; if sewage disposal is adequate, the creek belongs to the employer. The company's ownership sometimes extends to the roads, so that it can control ingress and egress. In some counties the company is the employer of the deputy sheriffs and is therefore responsible for police supervision. In Logan county the operators paid out $61,000 last year, as the president of the Logan Coal Operators' Association testified before the Kenyon Committee, in salaries for deputy sheriffs.

Miners in West Virginia are not paid as workers elsewhere are paid. They do not receive in cash all that they have earned. On their semi-monthly paydays they are given statements showing how much they owe the company and how much the company owes them. Among the items charged against them in this account is the indebtedness incurred by them at the company store. Other items are rent for their houses, lighting, heating, doctor services, use of the hospital, the sharpening of tools and occasionally a charge for use of the company wash house in which to clean up after a day's work. The miner pays the same amount for doctor and hospital services whether there has been illness in his family or not. For major operations such as child birth and other important surgical treatment, additional sums are paid. Rent varies according to the condition of the house, usually running from $6 to $10 a month. Lighting costs the miner on an average about $1 a month, coal for heating his house from $1 to $2, the medical charge is about $1 or $2, and hospital service costs from fifty cents to $1 a month. All of these items are deducted by the company from his earnings. The charge for food and other necessaries bought at the company store is likely to be the largest item. If the miner's credit sheet shows $79.31 and his debits come to $26.16, he receives $53.15 in cash. These are averages taken from a company pay-roll for the latter half of November, 1920. If the miner has been out of work part of the period, his debits form a greater share of his earnings. Weeks or months of unemployment, such as are now being experienced, often compel the companies to forego some of these charges and leave the miner nothing.

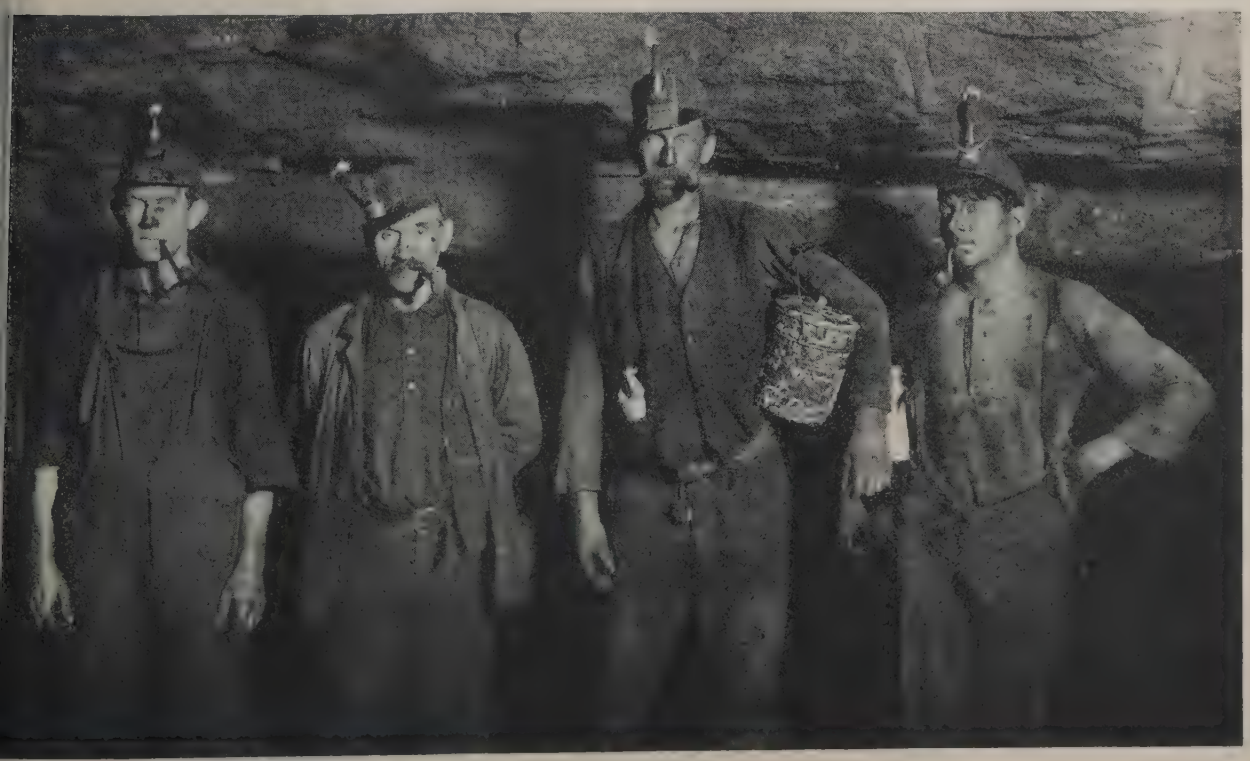
Miners in West Virginia still use scrip largely

making purchases at the company store. This issued to them by the company up to the amount their credit or earnings at the time. Scrip consists either of coupons in perforated sheets or small metal tokens rounded like coins, stamped in various denominations. Some companies accept this scrip in lieu of real money at the pool room, the movie theater and other places beside the company store. The law of West Virginia prohibits companies from issuing scrip in payment of wages, specifying that when such scrip is issued it shall be held to be "a promise to pay the sum specified therein in lawful money;" but companies generally issue the scrip. I have never heard of a case being taken to the courts to settle whether or not its use be lawful. But it encourages spending is undoubted. The general superintendent of a coal company writes: "By giving them [the men] the privilege of handling scrip in this way, much more of it is being spent and the attendance at our theatres would not be so large as we did not allow them to use the scrip for purchasing tickets."

The results of this general mode of life is that many mining towns are unsightly, unhealthful and poorly looked after. Houses are slapped up, seldom repainted and allowed to go unrepaired. The surface privy is nearly everywhere in evidence; it is a prevalent cause of soil pollution and often stands on high ground back of the house, so that its contents are washed toward the bed of the creek. Garbage is collected with indifferent frequency, perhaps once during the hot summer months. There are towns in which tin cans cover the ground in every yard and the whole aspect is one of dreariness and the ugliness of neglect. Children find no playground but the railroad. There is not even a sidewalk. Once in a while you pass belching coke ovens, spewing their fumes and smoke from their open tops directly at the windows and doors of houses close by.

A few towns, on the other hand, are neat, attractive in appearence, well cared for. The houses are substantially built, perhaps even supplied with running water. Garbage and ashes are frequently removed. Some companies offer prizes for the best garden and try in other ways to keep the town pleasant in appearance. Children run in a playground. Here and there a company maintains a dairy herd and sells its employes fresh milk. A bank for savings is sometimes found and men who have been with the company for some time are given free insurance policies. These are the exceptional communities. They prove that it is not necessary to live in the midst of dirt and unsightliness even if you do work for a coal mining corporation.

For all of this strange type of existence there is historical and not ungenerous explanation. The first companies to come into the territory had to bring their civilization with them. Men were needed to work the mines, and men must be provided for if they are to live. Houses were built, therefore, and next the necessaries of life had to be secured. The company built a store in which it sold provisions to its employes. Children became more and more numerous; education being essential, a school was built. Perhaps this was followed by a pool room or a movie theater. By successive stages a community was produced. But each expenditure resulting in an



THE NEW WEST VIRGINIANS

addition to the town's activities was made by the coal company. The company owned the land all around, and when the town was built the company owned the town. What began as a means of taking care of the emergent needs of people became a settled condition everywhere. Today four hundred thousand men, women and children in West Virginia are living this subservient existence. They are caught up in a civilization within a civilization—an alien order imbedded in democracy.

There is no escape from it for them. Its paternalism touches their lives at every point. They cannot initiate or take part in any of those little ways of controlling one's environment that are the common pride of normal small towns from New England to the mountains of the West. Any collective voice among them is smothered; they are the recipients of what others think is good for them. Many might not know what to do at first with a degree of control over their own and their group life if they had it, but the process of learning might be of benefit to them.

One way of exercising some measure of control over the conditions of their life and work has been open to them. That has been through affiliation with the United Mine Workers of America. By belonging to a labor union strong enough to negotiate with the organized groups of their employers, they have been able to insist that one of their own men weigh what they produce. They have been able to affect wages and hours. They have been able to exert collective pressure for a greater degree of safety in the mines and thus to reduce the number of maimed and broken men. In various ways they have been able to find an outlet for those impulses of self-expression that lie dormant in every man, and to improve the outward conditions of their lives. I do not know of any adequate analysis that has ever b made of the psychological forces that lead men labor unionism, but I do know that to miners pres down by the pervading dependence of their existe in company towns, the opportunity afforded by uni for joining with their fellows in some kind of c lective effort may seem a welcome escape.

III

LIFE in the valleys of West Virginia before t coming of the mines was relatively secure. I spite his rugged surroundings, the dweller there kn with considerable certainty what was in store f him. Land was plenty and people were few; could count upon enough for his own needs. H knew that the soil would be fertile and that the se sons would come and go regularly. In the maki of a livelihood there was little that he needed worry about.

The mines have thrown open wholesale oppo tunity for employment, but that employment h been intermittent and irregular. A bituminous co mine seldom works constantly, even in a good yea in a bad year, as we have already seen, it lies idle f months at a time. During the year ending June 3 1919, the mines of West Virginia averaged 204 da in operation; this was 104 fewer than the potenti working year of 308 days. It meant that the miner lost that year about a third of their possible earnin time, a percentage, however, only slightly greate than the average for the whole country for the pas thirty years. It meant something more than that It meant a loss of security; it meant that the miner were not able to tell what the next month or the nex three months held in store for them, that they wer shuttled back and forth between periods of steady

(*Continued on page* 1044)

The Conquest of Isolation

By HEBER BLANKENHORN

THE psychology of miners—rank and file or leaders—has a background often lost to sight: isolation. Take an old miner, Tom B; Irish to the eye from fifty feet off, Irish to the ear as he talks of the mines: "The boss finally give me a job, company work. Down in the gangway I found the Eichelberger boys, talking Pennsylvany Dutch. 'Howdy Al, Howdy Jake,' says I. 'Hello Tom,' says they, very friendly. I slings off my jelly bucket and hangs it up, and my coat and hangs it up. About ten minutes I stands there and all the while they was goin' it to each other in that language of theirs. I puts on my coat and takes my old bucket and slings it on and says, 'So long boys.' 'Why, Tom, you ain't goin'?' says they; 'Listen, Tom, we wasn't talkin' about you.' 'I know you wasn't,' says I; 'So long.' Up above I see the boss and tell him I guess that wasn't my job. 'I didn't come to the mines at my age to learn Pennsylvany Dutch.' The boss says all right and give me a job in No. 2 gangway with Monahan for buddy."

In a factory, that would hardly be a legitimate grievance; the boss, you will notice, conceded it legitimate in the mines. For most miners work in twos; a few groups may reach to four. All day the miner is alone with his buddy. If rock falls on that buddy, the miner hurrying for help may take an hour before finding the next pair of fellow workers. In a crowded factory room ease of conversation may not seem vital. In a mine, it may.

Welsh, Irish, English, Scotch are in the mines and an even greater number of Slavic and Latin stock.

r collective weight, their rise as a national , is the story of a gradual conquest of isolations. n the workings if I come upon five miners to- er," a mine superintendent remarked, "I know a serious accident or else a strike brewing." and danger so emphasize the isolation that it s merely exact to say that miners work with death near by (especially when one notes that 9 were killed and 136,754 injured in the last years and nine months in the anthracite mines e).

utside the shaft the miner's house is in a "patch" amp; or if in a town, that town is likely to mall—on a mountain or in a steep valley, pretty isolated, and the men in the next valley's village be more miners again. Within his village the ly to one side may be Polish, to the other, an, across the road, Lithuanian. Great bodies miners are isolated from information; the local ers are advertising rags.

Most of them began by being isolated from ation. Into the mines at the age of ten, twelve, fourteen; so goes the experienced man's biog- hy. A teacher leading a class of ambitious ers through a school arithmetic found nine out en in difficulties when they reached long division. s the miners' resentment against the isolation n education which, in many states, has forced ol law after school law on the statute books has raised the age limit at which youth could go work.

he good story-telling, the philosophic remarks bits of shrewd wit heard among miners are d in the isolation; so is the poorness in sustained ument. You chat with a buddy; you don't ate. Arguments tend to get tackled the same he coal, by main force. A young man, son of iner, in a college attended by many coal owners' s, said to a visitor: "I hear a lot of mean things e about the miners. I never say a word; some- es I try to knock their heads off." True, even to second generation.

ilent self-reliance is another trait out of the lone- s—a self-contained, brooding way of arriving at clusions expressed in terms of justice or fairness. ners tend to be stubbornly dead-set—"thick" is ir own word for it. The bull dog type shows quently among their leaders and they can hate illation or cowardice pretty ferociously.

The way the miner on the job is left alone, to dle the inside of the planet as he finds it, works in two forms, psychologically. A "place" is igned to a pair of men, a "room" which becomes irs, theirs to work as they can—a farmer's propo- on. It is their section of the working face of coal seam, which they press into for weeks or nths or even a year for their tonnage, dipping wn with the vein or going up on a pitch, encounter- shelly coal or faults or bad roof or squeezing tom; or finding that the vein just vanishes. Their ng depends on how they handle these vicissi- les, just as life depends on how they plant their ps. The rate of pay at which they start may so cut down by obstacles a few weeks further on that they cannot "make wages." By cajolery or reasoning, by kicking, they must get the boss to raise the rate for ton or car, or yardage, props, and so forth. By bargaining they may capitalize their knowledge, greater than that of the boss. "There's a fall of rock in our entry," the miners may report. It has to be cleaned up before work can go on. "How much do we get to do it?" They may bargain a whole day's pay out of the boss for a two hour's job.

Or the miners may submit to vicissitudes, like farmers to the weather, and live lean.

"You *have* to be," said an old timer, once a successful miner and now a mine owner, "you *have* to be a trickster or a slave. That's the mines!" That was acute. Mines make two broad types: the isolated entrepreneur, who militates against the earth and the boss; and the isolated slave.

THE force which has chiefly militated against universal isolation is unionism. The loneness of miners, and the loneness of mining villages, was the greatest foe to the start of the unions. Coal operators do at last give in; but isolation still clogs the miners' union. The habits of mind, the limitations begot in isolation, characterize many men and leaders in the union. The union man rises into leadership in proportion as he overcomes the successive isolations. He quits being a slave; later he begins to see the limits to tricksterism. He may broaden into an industrial statesman.

Strong men with strong, simple emotions, more deeply rocked by the infrequent tempests in their tea-cup towns than are the metropolitan dwellers in the perpetual rill of little thrills; more bigoted, less nervous but more explosive—the individual miner *may* get so much out of life that they will be indifferent to spreading their contacts. Swinging a pick may be enough for him, the daily dip into the mysterious dark and the daily tiny drama of shooting out up into the sunlight, the sturdy canny contesting with coal, the rub of Irish on Welsh, English on Czech, Italian on Pole—these may make up the real miner; but the miners—collectively, the mining part of a nation—they as a force depend upon what skeins they knit across their isolation. It's their union that gives them a chance to dent civilization.

The stigmata of isolation are hard to outlive and are as visible on some of the miners' national leaders as are the hallmarks of the country lawyer upon half of our national leaders in Congress. "He couldn't follow an argument, never read anything and never answered a letter." That was the characterization of a leader, until recently, chief of all the miners in a state. Other, younger, leaders have a range of reading or of observation which would stump the run of coal owners. It is the isolation again—the scatteredness and lack of communications or habit of communication—which makes the quality of leadership peculiarly important; only a few big names, a few big acts, tend to stand out so all can see. This is true for the international union, for the twenty-seven districts in the different coal fields and for the sub-districts. And the captains and non-coms in the five thousand union locals

are collectively more important than its General Pershings. The press or rumor may describe this general as radical, that as conservative; this one as corrupt, another as tricky as Lloyd George, another as martyred. Instead let us trace what is more or less typical in the rise of many out of the isolation.

Begin with the simple historical fact: that it is generosity and not selfishness which attends the start of a union. True, the majority of the better-paid miners are often the last to join the union when formed. But among the minority of the well-paid miners, among the successful "tricksters," three or four, generally an old man and some youngsters, begin reaching out to the bulk of "slaves" because the way things go with the latter "ain't fair." Usually this is under the agitation of an outsider, some one who brings news from beyond the isolation, or an organizer. The local is formed and survives.

The president of the local or member of the mine committee finds he must be spokesman for miners whose complaints rise out of conditions in rooms quite removed from the room where the local leader is earning his own daily bread. He has to find out what the work is like in those other rooms, what the men are like, whether the drivers are distributing cars fairly—a score of specific facts. His isolation begins to go.

Perhaps he is faced with a strike situation; the men, breaking down the individual isolations, are all going to quit work in behalf of one fellow for whom something "ain't fair." The local president must get support; will the local in the next camp, and over the ridge beyond that, "do something?" More isolation goes.

He becomes district board member or district president. He authorizes a strike in a colliery which is instantly and completely lost. The colliery belongs to a huge concern which can afford to leave it idle, and shuts it down for a year until all the old force has moved away. Or he finds in one of a string of collieries an innocent new condition of work or scheme of pay which, if the precedent is not stopped, will be spread to the whole string. The leader's horizon must widen and widen. He must also find out what other leaders do. One district of the United Mine Workers is often amazingly ignorant of the methods of other districts.

The leader may find that the welfare of his men depends on action in the state legislature; or on the railroads' ability to supply cars; or on the attitude of owners in another state; or on the purposes of a few financiers in entirely different industries. Meanwhile a new isolation grows, the isolation of the official away from the rank and file in the scattered villages. He has to set up systematic means of overcoming isolation in many directions: he studies reports, makes journeys after friends, establishes newspapers.

Many a leader stops tragically or falls by the way comically. Suddenly elected, the young man who was surefooted in the dark gangway stumbles in the lighted offices in cities. He may be helped to stumble. More than once while absentee o ers were publicly proclaiming the godliness of t management, their henchmen in a mining city vately plied some strapping new leader with wh and women. Many, the majority perhaps, sto different stages where they accept things as are—the ownerships of the different companies, hostile attitudes of certain interests, the busi rivalries that can be played on, the ignorance their own membership, the world of the g trickster called Business. They become the cl executives of the unions as business concerns. too many get so isolated from the rank and so enamored of their own intriguing ability political dexterity, so steeped in the business vi point that they forget whose business has been trusted to them. They change sides, without repute. Two of the ex-presidents of the Un Mine Workers are now chief spokesmen for country's coal operators and there is a list of fo formerly high officials in the international or district unions, who now represent coal owners fight the union. Many more are unpurchasea union war horses, tireless negotiators, work-a- strategists, taking the business-run world as t find it and relentlessly crowding that world "more" for their fellows, and growling at me ingratitude and wondering at themselves—why t keep at the game.

SOME leaders have broken over the isolat so completely that they see the whole indus as a part of something else. The union, too, t see as a part of something—the labor moveme They do not rest with things as they are but out to reconstitute them. They are considering coal industry as a piece of national business their spirit is less like business and more like pa otism or religion.

Some are youngish men, with only fifteen twenty years' experience in the mines and in union; others have been their region's fighting le ers for a generation. Decades of hard contact w the facts have forced them to follow out the cau of those facts, as a miner follows the coal sea the vein of the causes, they find, must be purs outside the coal industry, much as the intermitt coal cars on the railroad at the mine tipple m be pursued to a far-off uncharted thing ca "market." The industry's troubles are basic in national life; the industry must be reconstituted a national plane; must be administered in a r way to serve public needs, inside and outside of mining regions—that is where these leaders' perience brings them out. In an obscurer way, rank and file have tended in the same direct Successive national conventions have adopted, the union's basic policy, nationalization of the c mines; and leaders have been designated to w out, in precise terms of industrial administrati what that policy means.

The progress, mines' and miners', seems to from isolation to nationalization.

The Broken Year of the Bituminous Miner

By F. G. TRYON and W. F. McKENNEY[1]

WHEN the United Mine Workers of America assembled at Cleveland in September, 1919, and formulated demands for a 5-hour day and 6-day week—a total of 30 working hours per week—their action was hailed as un-American and socialistic, but it a singular fact that from the day of the Ar- tice to November 1, 1919, when the great strike ke, the weekly reports of the mine owners showed average operating time of exactly 30.0 hours.[2] identity of the two figures was pure coincidence, ause the twelve months preceding the strike were rked by subnormal production, but it is a familiar t to all who labor in the mines that the working r of the coal industry is short at best, and that limited opportunity to work is distributed with onvenient irre- arity.

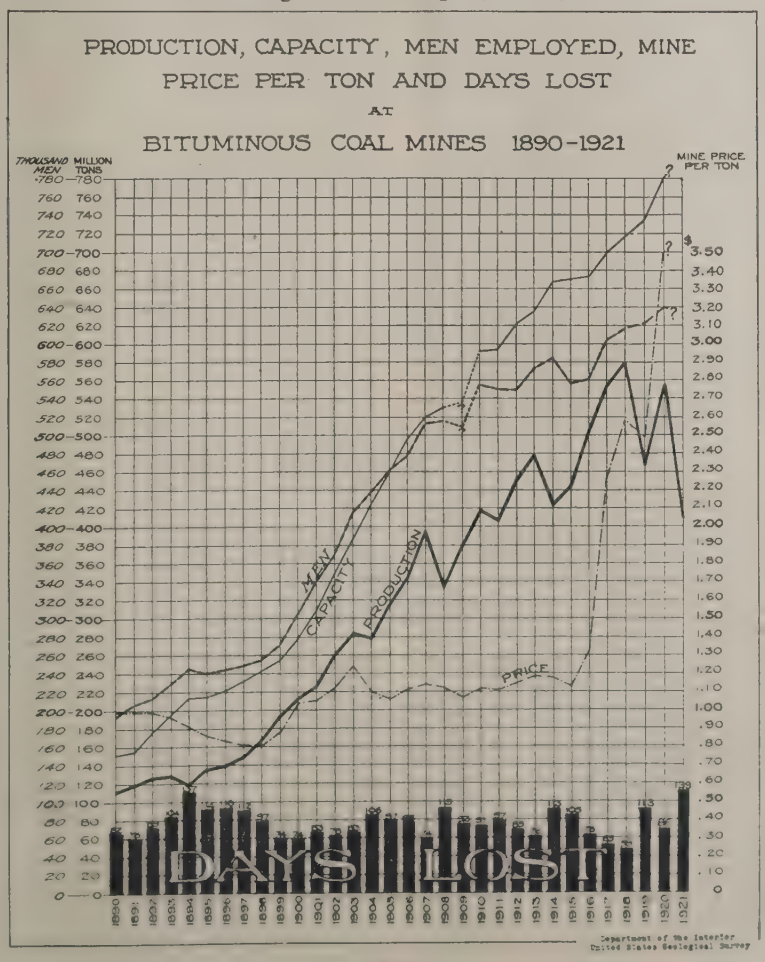
The potential rking year in the erican bitumin- industry is 308 s. In the last years the mines e actually work- on the average days, and have t 93 days, or 30 cent of the po- tial time in en- ced idleness due one cause or an- er. Even during war, with an nse demand for l and a working ce depleted by draft, the days t numbered 65 1917 and 59 in 18. In no other r before or since the loss been than 74 days, l in dull times it frequently risen 110 days. In 19 the loss was 3 days; in 1920, at least 84 days; and in the disastrous year 1921, the industry as a whole probably lost 139 days, or more than after the financial panic of 1893 (Diagram I).

The burden of this loss falls heavily upon all who are concerned in mining coal or in transporting it, and, though unseen, it rests no less heavily upon those who use coal.

The consequences to the miner are the most obvious. To him the short working year is a direct loss of income. It drives him to demand a daily rate of return that will compensate for the days when he cannot work. Coal mine labor is well paid, if measured by the daily wage scale. The present scale in the Central Competitive Field for the underground men who are paid by the day is from $7 to $7.50. The men paid by the ton can generally earn more.

DIAGRAM I

During the last thirty years, the bituminous mines of America have lost, on the average, three working days out of ten



Numerous instances have been pointed out of miners who have earned $500, $600 or $700 in a month on the 1920 wage scale. [Silvino Degosperi, a miner in the Hiyasota No. 1 mine of the Penn Smokeless Coal Company, earned $268.60 in the pay period, August 16-31, 1920. Charles Zambotti, a cutter in the same mine, earned $351.33.] Such exceptional performances should not blind us to the general fact that the industry is one in which data as to annual earnings of large groups of men are the only ones of real significance. Perhaps as good a figure as any is the average annual earnings indicated by the Census returns.[3]

[1] Published by permission the director. United es Geological Survey. Except where otherwise fied the statements in article refer to the bit- ous coal industry alone. conditions in anthracite ng are different.

[3] The Census Bureau obtains from coal operators the sums paid out in wages. It also obtains the number

These for the bituminous mines in the year 1919 amounted to $1,200.[4] The variations from state to state in the average earnings have not yet been made public by the Census Bureau, but from the known customary relationships it may be assumed that few districts would show an average less than $1,000,

TYPICAL TRANSPORTATION DEMAND OF THE SOFT COAL INDUSTRY

When business is fairly active our annual requirements for home consumption and export are about 528,000,000 tons per year, or 44,000,000 tons per month. The diagram shows the monthly quotas in which this total is likely to be called for by the consumer as indicated by the experience of the past eight years

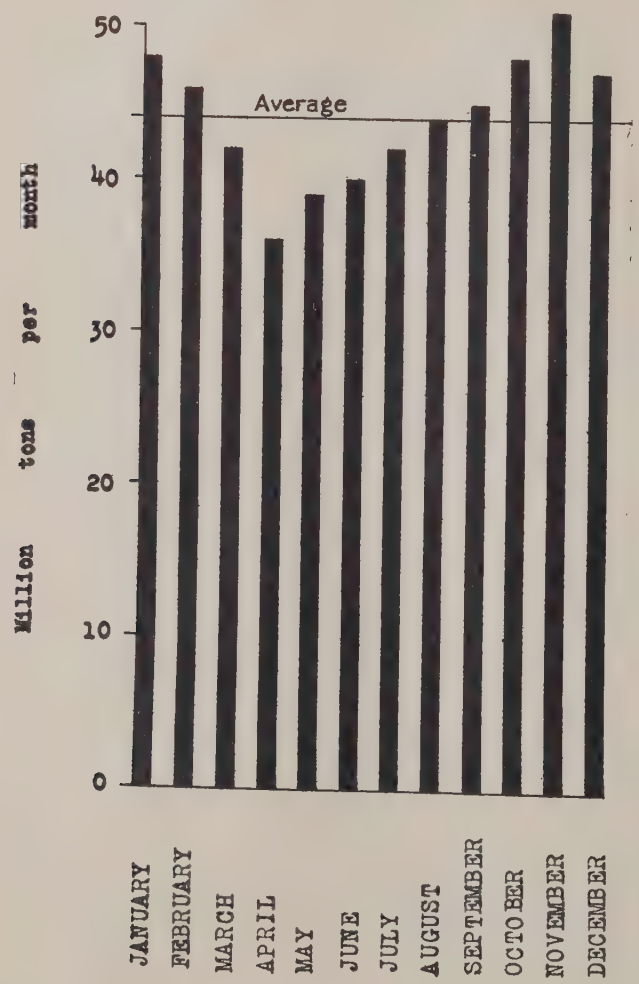


DIAGRAM II

and few greater than $1,500. The essential accur of these averages is supported by the evidence p sented by the union operators before the Bitumin Coal Commission.

The year 1919 was not normal in bituminous m ing so far as the amount of work offered is concern The average number of days of mine operation w 195. The year before it had been 249, and in following year it was probably about 222. At same wage scale the number of days' employme offered in 1918 would therefore have produced income nearer $1,400, and the 1920 employment, income nearer $1,300. In 1920, however, a sha advance in the wage scale was awarded by the Bi minous Coal Commission, and in that year, whi was also one of enormous profits for the operato the earnings of the miners reached the highest poi on record. Precise data are lacking, but there c be little doubt that many men made from $1,400 $2,000. In Ohio the average for all coal-mi workers in 1920 was $1,500.[5]

Speculation as to average earnings in 1921 wou be fruitless. Thousands of miners have been entire out of work. Wage cuts in the non-union fields ha been partly compensated for by business snatch away from the union fields which continued to ope ate on the 1920 wage scale. In some of the latt fields working time has been extraordinarily low, that even day wage rates of $7.50 have not pr vented severe hardship.

The limitation on the opportunity to labor, hov ever, is not the only grievance of the soft coal mine The work when it does come is irritatingly spa modic. This intermittency of employment, even i times of active demand, is a contributing cause of th absenteeism and large labor turnover of which th operator complains. Irregular employment tends t beget irregular habits.

But the miner is not the only one to suffer fro the intermittency of operation. To the operator i means increased costs, lower profits, difficulty in ob taining and keeping an adequate labor force, me chanical troubles in the mine, waste of the resource According to the Engineers' Committee of the Fue Administration, costs of production are abov normal by 29 per cent, when running time is belo normal by 40 per cent. Irregular operation is on of the competitive factors which compel waste in ex ploiting the resource, a waste beyond control of th operator, but which leaves underground perhaps 3 tons for every 70 tons brought to the surface.

The railroads suffer from the irregularities in coa production because they cannot supply cars enough when the demand is most active, and when the de mand falls off, the cars they have cannot be employed (Diagram II). Counting cars, locomotives, and a share of the investment in way and fixtures, the rail roads have spent about as much money getting ready to transport coal as the operators have spent in get-

of wage earners on the payrolls on the fifteenth of each month. The total amount paid in wages divided by the average number of wage earners should furnish a rough index to the sum of money extracted from the industry by the ordinary man dependent upon it. Average earnings obtained in this way are, of course, subject to criticism when they include the earnings of high-salaried executives, or where the kinds of labor performed in the industry are very diverse. But in this case the Census has excluded by definition all salaried employes, and all men whose duties are supervisory. Further, coal mining is essentially a homogeneous occupation in which there is little room for boys or old men, and no room for women, and the vast majority of the wage earners are doing about the same kind of work.

[4] In making this computation, for which the authors are responsible, the average number of employes used is the average for the ten months, January to October, 1919. The figure of employes on November 15 and December 15 means little, because at that time the union men were on strike and consequently most of them not on the payroll. They did not, however, leave the mining industry and at the end of the strike they became again its paid employes. The figure of annual earnings may be supplemented in individual instances by income from other occupations, but the evidence presented to the Bituminous Coal Commission on this point fails to indicate that such auxiliary sources of income are extensive.

[5] These statements refer to bituminous mining. The average earnings of anthracite mine workers in 1919, computed in the same way, were $1,430. As the anthracite mines work fairly steadily, the factor of the opportunity to labor in one year as against the next is less important than in the bituminous fields. The anthracite workers were accorded an increase of approximately 17 per cent by the award of the Anthracite Coal Commission. This covered the period from April, 1920, and is still in force. Anthracite production in 1921 was larger than in 1919.

g ready to produce it, d the fluctuating de- nd for coal cars is e reason for low rail- ad earnings, and high ilroad rates (Dia- am II).

And as for the con- mer of coal, he has to y for the whole ex- nsive business. He ust pay the labor and pital in the industry r the 93 days of idle- ss as well as for the 5 days of work. What e money cost of main- ining this excess uipment of mine, min- s, and transportation nounts to cannot, of urse, be measured. ugene McAuliffe, an linois operator, has oldly guessed it to be 00,000,000 a year at 20 cost levels. But t us neglect the dollar sign and think of the loss in rms of days of potential human labor. In the 20 ars from 1900 through 1919 the coal miners of the untry were idle one and one-sixth billion working ays,* the equivalent of maintaining a standing army f 190,000 men. To put it in another way, it was ual to the man-days of productive effort lost in mobilizing our military and naval forces from April 6, 1917, to the day of the Armistice.

So great a social leak challenges attention. Is it a necessary feature of the coal-mining business? Not in other countries, to judge from Diagram III. Our principal competitors in the export coal trade enjoy much steadier operating time. Even the anthracite industry in the United States, by constructing storage yards and offering summer discounts in price, has raised its working year much above that of the bituminous industry.

What then are the influences at work in America which bring about a condition so different from that in England? Fundamentally that the mines are developed to an annual capacity of 750,000,000 tons when the most that has ever been burned or exported in a year is 550,000,000 tons. There is therefore an idle mine capacity of at least 200,000,000 tons.

Be it said at the outset that this condition of overdevelopment is not the responsibility of the bituminous operators. Without concerted action of a

* Includes time lost in anthracite mining. In bituminous alone the loss is 903,000,000 man-days.

DAYS WORKED AT COAL MINES IN SEVEN COUNTRIES

In no other of the principal coal-mining countries is the working year so short as in the bituminous fields of the United States. In 1913 (the year covered by the diagram) our bituminous mines averaged only 232 days out of a possible 308 days, and our anthracite mines only 257. Since then the condition has improved in the anthracite region, but has probably grown worse in the bituminous fields. The figures for the United States are exactly comparable with those for the United Kingdom and Nova Scotia, but not for the other countries. Were it possible to secure exactly comparable figures for those countries, the position of the United States would appear still less favorable

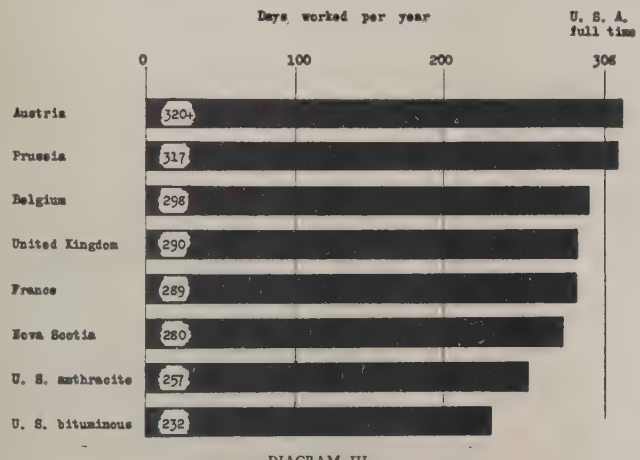
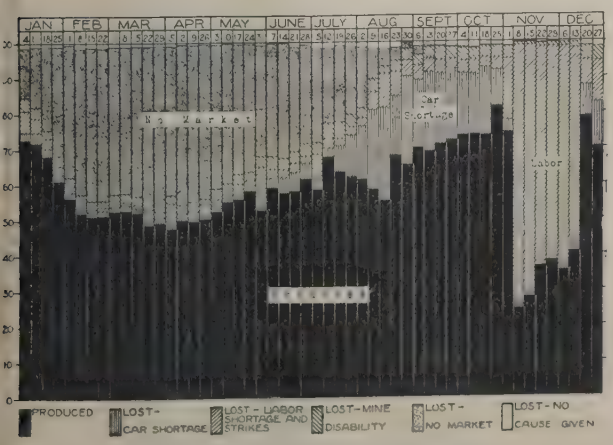


DIAGRAM III

These diagrams summarize operating conditions as reported weekly by bituminous producers in the United States. Full time of 48 hours is represented for each week by an upright column. The black segment is the per cent of full time worked. The shaded segments represent per cent of full time shut down for specified causes

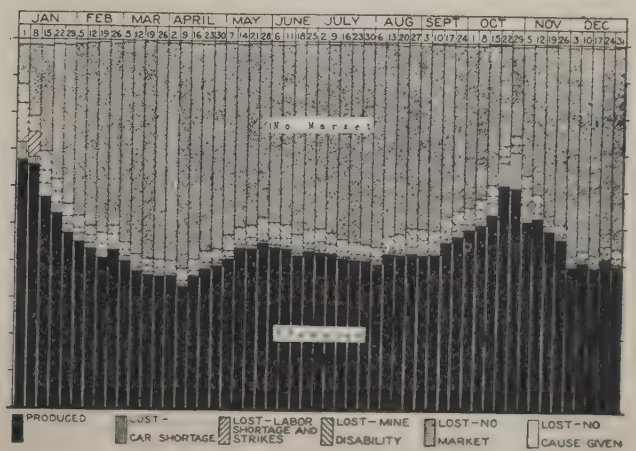
DIAGRAM IV



CAUSES OF LOST TIME AT SOFT COAL MINES IN 1919

The period covered was abnormal because the seasonal slump came earlier and was sharper than usual and because of the great strike of November 1. The diagram shows, however, what is true of any normal year, that in the spring and summer the limiting factor is "no market"; that as soon as the market picks up, more cars are asked for than the railroads can furnish; and that even in the busiest weeks the mines do not work full time

DIAGRAM V



LOST TIME DURING THE DEPRESSION OF 1921

The symbols used are the same as in the preceding diagram. The black segments representing productive operation stood at less than 50 per cent of full-time capacity for most of 1921. Throughout the year "no market" has been overwhelmingly the dominant factor limiting production. Transportation losses were insignificant except during the temporary increase in demand in last October just before the threatened railroad strike

kind forbidden by the anti-trust laws, they cannot control the economic forces which surround them. The over-development is the result of free competition playing on a resource as widely distributed as to be almost a free gift of nature.

Whereas the concentration of the anthracite reserves in an area of 480 square miles in Eastern Pennsylvania naturally fostered combination and led to an economic organization which more than once has been challenged by the courts, the reserves of soft coal are spread over an area a thousand times as large. Nearly a sixth of the surface of the United States is underlain by soft coal or lignite. The beds are thick and readily accessible. Under these circumstances it has been so easy to open new mines that an effective combination to control production has yet to be created. The soft coal market behaves as nearly like a free market as almost any the United States can show.

But while over-development is the great underlying cause of mine idleness, "labor troubles" and "car shortage" are often the immediate causes reported by the operator. How the several causes interact is illustrated by Diagrams IV and V.

"Car shortage" includes all forms of transportation disability which interfere with the placing of cars at the mine. The railroads can transport 12,000,000 tons of bituminous coal a week, a capacity sufficient to handle even the maximum year's business if offered them in equal weekly instalments. But the mines are rated by the railroads to produce 18,000,000 tons of coal a week; although the ratings are inflated, the mines can certainly load 15,000,000 tons. The railroads can transport 12,000,000 tons a week, or at the most, 13,000,000. When demand for coal is active all mines seek to enter the market and all ask for cars to the limit of their rating. The difference between the cars they need and the cars they are furnished is very properly reported as "lost on account car shortage." Yet it is a deceptive car shortage, for if by some miracle all the cars asked for could be supplied, the market would soon be flooded with coal and instead of a car shortage, the mines would be reporting "no demand" as the limiting factor of production.

No doubt we need more cars, but simply increasing transportation facilities will not mend the broken year of the coal miner. The principal beneficiary will be the consumer of coal. Ample transportation is his best protection if he is to continue his present luxurious habit of buying coal whenever he wants it, without reference to the ease of supplying it. More cars, however, will not sell more coal. They will merely affect the distribution of working time through the year, tending to increase it in the periods of peak demand, and to make it still less than now in periods of low demand. Car shortages have occurred not infrequently, but it is a curious fact that rarely have they curtailed the actual consumption of coal. For the most part their effect has been to limit the quantity of coal which could be produced in the fall and winter, thereby forcing some consumers to purchase earlier in the year.

Transportation as the primary cause of the short working year in coal mines must therefore be dismissed. Its effect is secondary rather, and consists in controlling the distribution of work from season to season.

Much the same is true of that part of mine idleness attributable to labor. Losses due to strikes are spectacular when they occur, and in the last 20 years have mounted up to the enormous total of 125,000,000 man-days.[1] But the time lost on account of strikes is only 10 per cent of the total time lost, and it may be questioned whether much more coal would have been produced in the aggregate during that 20 year period if there had been no strikes (Diagram VI). The strike of 1919 did force consumers to go without coal for a brief period, and was an underlying cause of the scarcity in 1920, but the complicating factors at that time were exceptional. More commonly strikes have been discounted in advance by accumulating large reserves of storage coal, and the task of meeting the country's requirements has been shifted to other mines or to other periods of the year not affected by the strike. In terms of man-days lost because of strikes, the year 1910 was the record. Yet it also set a new record of production and the average sales realization f. o. b. mine—the best index of prices, all things considered—did not differ greatly from that of the year before nor of the year immediately after. Strikes and labor disturbances, therefore, like car shortage, must be classed as secondary rather than primary causes of non-operation. In years when there has been no strike of any magnitude the loss attributed to "no market" has increased to take its place.

The fundamental, primary cause of non-operation is thus seen to be demand. In the long run the aggregate demand has been satisfied and more coal than sufficient to meet the demand could not be produced. The mines and the miners could expect about so much work, and if transportation or labor troubles did not intervene to prevent operation, lack of demand would intervene.

Diagram VII suggests the relative importance of the three forms of demand idleness. First, there is obviously the idleness which results from business depression, present in some years and absent in others, when the market for the year will take only part of what it normally absorbs. Out of a total annual loss of 93 days in the past 30 years, business depression has accounted for an average of 15 days. It is one phase of the much greater problem of the business cycle. This leaves 78 days of demand idleness to be accounted for in other ways, even in a normal, active year.

Consumption of coal in a climate like that of North America must always be seasonal; even a factory will require more in winter than in summer, if only for heating the building. Several influences tend to obscure the seasonal effect, among them the shipment of coal to the Northwest via the Great Lakes in the summer. As indicated by pre-war experience, the seasonal effect is likely to cause a loss of about 44 days, even though capacity is no greater

[1] Includes strikes in the anthracite region which account for 33,000,000 man-days.

than that necessary to meet the demand in the busiest season (Diagram VII). If seasonal demand is to be overcome, it can be only by storing an additional 21,000,000 tons in the dull season. To accommodate this tonnage above that ordinarily carried in stock presents difficulties, but they are not insurmountable, provided storage can be made financially attractive to the consumer. Various devices looking to that end have been proposed, among them seasonal freight rates and summer discounts in prices.

There remains a measure of idleness which must be ascribed to sheer over-development beyond even the maximum season's requirements. Allowing 44 days of idleness on account of seasonal demand, the loss due to over-development may be placed at 34 days, but its share would increase if seasonal demand were eliminated. Smoothing out the demand into equal monthly instalments would not increase the total demand nor decrease the total capacity. It would change neither the number of days worked nor the number idle. Its effect would be merely to transfer 44 lost days from one ledger account to another. Eliminate seasonal demand and it would be necessary to debit sheer over-development with a loss of 34 days plus 44 days or a total of 78 days.

Making more work for soft coal miners—speaking always in the aggregate for all miners—comes to grips sooner or later therefore with the fact of over-development.

Are there any possible limits to development? An ultimate limit is set by the resource. In western Europe and in the anthracite region of the United States the coal-bearing lands have long since been brought up. With unnecessary expansion checked, production has overtaken capacity, thus making possible a steady working year. But in the bituminous fields of America there are few signs of a natural check to expansion in the immediate future. Sites for large mines are becoming less abundant, but for those who are able to finance extensions of the railway net, the valleys of the Appalachians still hold possibilities. And in the West, where two-thirds of our fuel reserve lies, the resource has hardly been scratched. Hence, if there is to be any check to needless development, it must be worked out by the common effort of those who produce coal and those who consume it. Not to attempt it would be out of keeping with the spirit of American industry.

STRIKES IN BITUMINOUS AND ANTHRACITE MINES, 1910-1918

Average for all bituminous and all anthracite mines in the United States during the nine years 1910-1918. Days idle include strikes. Ten and seven-tenths per cent of the time lost in anthracite mining was due to strikes, and 10.6 per cent in bituminous mining. The greater part of the time lost on account of strikes has been "suspensions" between the expiration of one biennial wage agreement and the execution of another

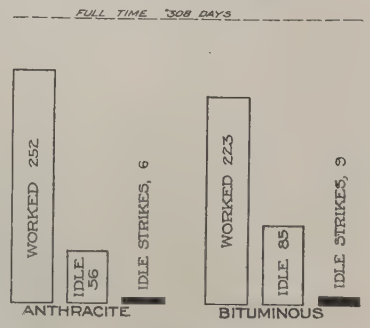


DIAGRAM VI

We have seen that the opportunity offered by the mines to labor is limited to an average of 215 days a year. But further examination shows that this limited opportunity is not evenly divided. So far we have been talking in terms of those deceptive things, averages, without regard to the fact that conditions in individual mines or districts depart widely from the average.

A frequent cause of inequality in working time between *mines* has been the practice of "assigning cars" for loading railroad coal. The mine accepting a railroad fuel contract was allotted cars in times of car shortage in excess of its share. The result was plenty of work and fat pay envelopes for some workers, and scanty work and privation for others. Assigned cars have been the subject of a long-standing quarrel between the operators and the carriers. The practice, however, bids fair to be restricted or even eliminated by a provision in the Transportation Act and by recent court decisions.

No less important, there are inequalities between *districts* in the opportunity of labor. Competition between producing fields is always keen, and the economic opportunity of the individual miner is controlled to no small degree by the quality of coal, nearness to market and the freight rates enjoyed by his district. In the controversies over freight rates only the mine owners appear, but it is the mine workers after all who are most affected by the decisions of the rate-making authority.[a]

THREE FORMS OF MINE IDLENESS TRACEABLE TO DEMAND

The records of the United States Geological Survey show that in the 30 years 1890 to 1919, the bituminous mines worked on the average only 215 days, and lost 93 possible working days each year. In a sense this loss of time is all ultimately traceable to demand. Car shortage and labor troubles affected the distribution of work from one month to another or from one mine to another, but the factor which really determined the total working time was the amount of coal the market would take. The diagram analyzes this demand-loss into three elements. The elements of seasonable demand and over-development are probably fairly regular. The element of business depression is present in some years and absent in others, the average for the 30-year period being about 15 days

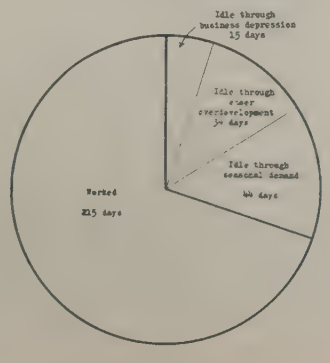

Idle through business depression 15 days
Idle through sheer overdevelopment 34 days
Idle through seasonal demand 44 days
Worked 215 days
TOTAL WORKING DAYS - 308

DIAGRAM VII

This article has discussed only time lost by the miner through non-operation of the mine. It does not discuss time lost by the individual worker while underground, a subject concerning which little is known. Neither does it touch upon absenteeism—the extent to which the miner fails to take advantage of his opportunity to work.[b]

[a] Another factor causing inequalities in working time was particularly active in 1921, the factor of unequal wage rates. The union mines retained the wage scale of 1920. The non-union operators cut wages in the hope of underselling the union fields. To what extent they succeeded belongs to the present wage controversy rather than to the subject of this article.

[b] These phases of broken time are touched upon in the accompanying articles by Mr. Lane and Mr. Wing.—Ed.

THE

Photo. N. Howe

RIP

Photo by Hine

AN ANTHRACITE BREAKER

Economic Aspects of the Anthracite Industry

By DAVID L. WING

WHEN the man in the street reads of the prospect of a coal strike, or advice to buy coal early, he at once thinks of this news in connection with the coal which he burns in his stove or his furnace. In the North Atlantic and Great Lakes states he generally uses anthracite or hard coal; elsewhere in the country it is probably bituminous or soft coal that he uses for domestic purposes.

Now soft coal is mined in thirty states and the area which this coal underlies comprises about 458,000 square miles. The anthracite measures cover but 480 square miles in Pennsylvania (where practically all the anthracite in the country is mined). Yet about 70 per cent of the output of hard coal reaches directly millions of homes in the United States and Canada, whereas 85 per cent of the output of soft coal is bought and consumed in industrial plants by about one-tenth of 1 per cent of the population. Indirectly, of course, the entire population is affected by the prices paid for the soft coal used industrially. The price of anthracite, however, has a direct, immediate effect on the "pocketbook nerve" of the consumer. And in reading the news, as George Otis Smith, director of the United States Geological Survey, points out,[1] the consumer is likely to jump to erroneous conclusions:

If he learns from the papers that "gas coal is being exported overseas" he thinks it is anthracite and blames the export demand for his difficulties, not knowing that practically no anthracite is exported, except to Canada. If he hears that the price of steam coal at the mine has fallen close to the cost of production he declares, "And my coal is costing me more than ever!" not realizing that what may be true of Pennsylvania bituminous prices and costs may not be true of anthracite prices and costs. If he reads that legislation is pending affecting the coal industry his opinions concerning the proposed measures reflect only his experiences in obtaining anthracite last winter.

And yet the two industries are radically different; for every man engaged in mining anthracite coal four are digging soft coal. The soft coal mines of the United States produce in a single day as much as the anthracite mines in a week. The one is a comparatively simple extractive industry; the other partakes of the nature of a manufacturing industry. The one is in large part carried on in small units, with simple industrial organization; the other is characterized by a compact, inter-connected organization and large units of operation.

[1] Letter to Senator Edge published in May 1921.

In round numbers about 90,000,000 short tons of thracite are produced yearly. Most of the anthra- e marketed is taken from seams deep under- ound. Openings are cut into the seam, and pillars walls are left to support the roof. These sub- ranean openings are connected with the outside orld by means of an elaborate system of passages own as galleries, which lead to the shaft or mine ening. Through these galleries, sometimes miles length, the mine cars loaded with coal are hauled, nerally by small electric motors, until they reach e shaft. Then, hoisted up on a high structure lled the tipple, they dump their contents into utes.

Up to this point the process followed in anthra- te mines corresponds in the main to that in most tuminous mines. From the moment the coal hits e chute, however, the close similarity disappears. xcept where bituminous coal is to be sold for omestic use, the process of preparation of the soft al for market is simple and comparatively in- pensive. Where it is not sold in the sizes just as comes from the mine as "mine-run," soft coal is nerally screened roughly into two sizes: "lump" d "slack," or screenings. The cleaning of the coal om slate, clay and other impurities is generally t an elaborate affair. The preparation of anthra- e involves the use of "breakers"—large structures led with machinery, in which the various different ocesses of cleaning and sizing of the coal must be rried on. There are nine sizes, five "domestic" zes: broken, egg, stove, chestnut and pea; and ur "steam" sizes: buckwheat, rice, barley and iler. Prior to 1917, pea size was generally ouped with steam sizes but its increased use since at time for domestic consumption warrants its esent classification as a domestic size. The rela- e proportions of the output which go into pre- red and steam sizes vary from mine to mine and om field to field. About 30 per cent on the aver- e of the fresh mined[1] product may be said to go o steam sizes.

The economic significance of this production of eam sizes should be clearly understood. As a le, these sizes can be marketed only for boiler om use as an unequal substitute for the nearest ailable bituminous coal. The advantageous dis- sition of his steam sizes is therefore a constant oblem to the anthracite operator. Some of them burns to generate the very large amount of power quired about the colliery and breaker. In order to mine his domestic sizes (his principal product) which are in constant demand, he is forced to go on producing at the same time the regular proportion of steam sizes in his mine output. When the market for steam sizes is dull, he must store what he cannot sell of this by-product until industrial demand im- proves. To only a very limited extent, anthracite operators have overcome through the manufacture of briquettes the disadvantages imposed by this unavoidable production of steam sizes. They have repeatedly sought to persuade consumers to buy the smaller sizes for domestic use. In this way they have gradually induced householders to burn pea coal, formerly considered one of the steam sizes; and now that pea is accepted as one of the prepared sizes regularly carried by the retail merchant, the producers are seeking to popularize the next smaller size, No. 1 Buckwheat. Buckwheat has already been adopted by most of the larger apartment houses in eastern cities, and no doubt still more of it will in time be used by the householders. Domestic furnaces designed for the use of the smaller sizes are now on the market. A recent experiment has shown that the ordinary household coal bill can be halved by burning these sizes with the aid of a forced draft from a small electrically driven blower.

THE larger producing companies sell most of their output direct to the retailer through their own selling organizations, or through agencies so closely identified both in financial arrangements and in management with the producing companies that they may be regarded rather as selling departments than as separate wholesalers. A considerable quantity of their steam sizes is also sold direct to manufacturers and railroads so that the bulk of the output of hard coal passes through the hands of but one middleman from the mine to the retailer's yard or to the large consumer. Many of the smaller producers, comprising the majority of the independent or individual producers, market their output through jobbers or selling agencies in which they have no direct financial interest, and which charge a commission for their services; others sell their product outright to various jobbers and retailers; and some sell their entire output to railroad coal companies at the mine. The last mentioned market it through their general channels. The jobber does not actually handle the coal he buys and sells. He simply finds a buyer and reconsigns to him the bill of lading for coal on the car or in the barge. The local wholesale trestle and dock companies are another class of middlemen. They differ from the jobbers in that they actually receive, store, and reload the coal, selling it in carload lots to outlying dealers, or in wagon lots to local dealers. Some of the storage trestles and docks are maintained by local companies; others are operated by the selling agencies of the large producers as part of their machinery of distribution.

Anthracite can be stored in large quantities for considerable periods of time with little deterioration of quality from weathering and with little risk of catching fire. Therefore it can be stored in suitable

[1] Of the total output of anthracite obtained before 1917, about 95 per cent "fresh-mined" (coming directly from the mines) and about 5 per cent "washery" product recovered from the culm banks. During the war the portion of washery product rose to 8.5 per cent, because of the great and for steam coal. At this time the Fuel Administration undertook a rey of the available "bank" coal. It was then estimated that the total chantable coal available in the culm banks of the anthracite region was ut 50,000,000 tons. The culm banks consist of the waste small-sized coal mulated in the past years in immense piles at the mouth of mines. This , because of the marketing conditions at the time it was mined, had nerly little or no value and was dumped on the ground as a waste prod- About 20 per cent of the washery product is of domestic sizes—chestnut pea. Under the market conditions of past years it has acquired suffi- t value to make it worth while to reclaim this small-sized coal by putting contents of these banks through a washery. This process cleans the coal n impurities and separates it into regular commercial sizes, as it does for fresh-mined product. About 20 per cent of the coal recovered from e culm banks is of domestic sizes, being divided mostly between chestnut pea. Inasmuch as the only expense to an operator owning a culm bank he cost of preparing the coal for market through a washery, it is easy to why he is induced, in times of brisk demand for steam sizes, to increase output of such sizes in that manner.

places at the mines, at storage yards located en-route to the consuming centers, on docks, and at destination, when the demand for all sizes or for a particular size is not equal to the production. Were it not for this, it would be extremely difficult to stabilize production since the demand for domestic use, which is the fundamental object in mining anthracite, is much greater in the cold months than in the warm months. To be sure it takes more coal to make steam and to heat factories in cold than in warm weather, but the main fluctuations in demand for bituminous are directly tied up with the condition of general industry. When business is good, much more soft coal is needed than when business is depressed. Thus while the seasonal fluctuations for anthracite are much more marked than those for bituminous coal, the annual demand for anthracite, being based on the regular domestic needs of the population served, remains fairly constant. The fluctuations in the total tonnage produced in recent years have been chiefly due to the production of steam sizes through culm-bank operations. The supply of domestic sizes produced varies little from year to year, and the output of such sizes has not kept pace with the continued growth of population. Since 1910, the population in the states forming the principal market for domestic sizes has increased about 16 per cent, whereas the output of domestic sizes has increased but 8 per cent. In 1913, the shipments to points outside the anthracite region, of the prepared sizes, including pea coal, amounted to 58,000,000 net tons. In 1919, the shipments of the same sizes amounted to only 56,000,000 tons. The principal reason for the stationary production in the face of unmined anthracite reserves amounting to 16,000,000,000 short tons lies in the prices at which domestic sizes have been marketed in recent years. These prices, though not high enough to induce an increase of productive capacity, have been too high when compared to the prices at which substitute fuels have been available to the consumer. The rising anthracite prices have brought about an increased use of both natural and manufactured gas, petroleum products, coke (obtained from bituminous coal), and also of bituminous coal itself (in the territory where anthracite meets the competition of soft coal prepared for domestic use).[2]

ONE of the most striking differences between bituminous and anthracite conditions is to be found in their industrial organization. These differences are in large measure due to the distribution of the coal deposits. Soft coal is mined in thirty states, and the unmined reserves are estimated at some 3,500,000,000,000 short tons underlying a total of 458,000 square miles. The competition between fields and between producers in the same fields is keen. Most fields are heavily overdeveloped, having an excess capacity over normal needs of about one-third. This means an excess capital investment capable of producing 250,000,000 tons per year and an excess labor force of about 175,000. On the other hand, the anthracite deposits are virtually limited to the Lehigh, Schuykill, Wyoming and Sullivan county regions of Eastern Pennsylvania, the unmined reserves, as already mentioned, being about 16,000,000,000 short tons underlying some 484 square miles. Production has reached a maximum under present conditions and has become stabilized. There is little excess capacity.

The total output of anthracite at present comes from some 260 collieries, operated by about 220 producers. There are about 155,000 employes in the industry, of whom 108,000 work underground and 47,000 are employed above ground in the preparation of the coal for market. But these total figures are somewhat misleading in so far as they throw light on the real industrial organization. For the facts, stated in general terms, are that about 80 per cent of the yearly output is produced by a group of nine companies; about 8 per cent more, by another nine companies; while the remaining 12 per cent of the production is divided among some 240 producers. Furthermore, it has been brought out in various governmental suits and investigations during the past few years that four of the larger railroad coal companies either own or control between 80 and 90 per cent of the unmined anthracite reserves. Most of these reserves were acquired by the railroads many years ago in order to make sure of controlling the transportation of the resulting tonnage. The railroad coal companies are reported to own about 70 per cent of the culm-bank reserves also.

The virtual control of the present and future of the anthracite industry is thus seen to lie in the hands of a small group of producers. Ten of these are at present, or have been in the last few years, closely affiliated with the railroads that serve the anthracite region. They are generally known as the "railroad coal companies." Their present legal connection with the railroads is not clear since legislation and litigation subsequent to their organization have caused changes in some of their interrelations. Thus in 1917, the Pennsylvania Railroad sold the Susquehanna Coal Company (which also owned the Lytle Coal Company) to the M. A. Hanna Coal Company, and the Central Railroad of New Jersey has recently sold the Lehigh and Wilkesbarre Coal Company. How far these sales have changed, or may be expected to change, the economic policies followed in the past by this group of companies is a matter open to question.

The other anthracite operators are usually known as the "independent" producers or sometimes as the "individual" companies, owning as a class but little coal and mining most of their product on the basis of royalty payments; operating usually on a small scale; and selling most of their products to wholesalers and jobbers. There are some large pro-

[2] About half of the total output of domestic sizes is marketed in Pennsylvania, New York and New Jersey. New England takes about 17 per cent, and the six North Central states bordering on the Great Lakes, 14 per cent. The exports, mostly to Canada, form about 7 per cent, and the railroads use about 5 per cent. The steam sizes are much less widely distributed. As Director Smith points out in his letter to Senator Edge, the marketing territory for them is determined chiefly by the relative freight rates to the consumer from the anthracite mines and the nearest available bituminous sources. This restricts the market for steam sizes to the region east and north of the anthracite district. Pennsylvania, New York and New Jersey take about 75 per cent of the total output marketed, New England about 4 per cent, and the railroads about 16 per cent.

icers among them. In 1918 there were nine who ined over 500,000 tons per annum, but the large ajority have a relatively small output.

Most of the facilities for reserve storage of coal e owned by the railroad coal companies, whereas ie independents, as a rule, are forced to shut down times when the demand is insufficient to absorb eir output. That is one of the chief reasons for ie marked differences in their marketing policies. i regard to these, Mr. Smith's letter of last May to Senator Edge is in point:

> While the railroad coal companies have stuck closely to eir circular prices, which varied but little from one month the next, except in carrying out their announced policy of mmer discounts, the "independents" have followed the rdinary business practice of selling their product for what hey could get and to any one who wanted to buy. . . . Those ho really want to get emergency supplies of coal and who re willing to pay any price tend to bid against one another or the "independent" tonnage. This concentration of the carcity demand upon a small part of the output may cause iolent fluctuations in the price of independent coal.

FAIRLY complete information as to anthracite costs from the beginning of 1913 to the end of 1918 has been collected, compiled and published by the Federal Trade Commission. Since that time, however, the only published cost information available has been of a fragmentary nature, being, in the main, cost statistics introduced by operators testifying before the various Senate investigations on the coal industry. These statistics generally relate to a few companies only and are not necessarily typical. The most extensive figures of this nature are those put before the Senate Committee on Manufactures in January, 1921, by the secretary of the Anthracite Coal Operators' Association, which represented the non-railroad affiliated coal companies. More recent cost figures published by the operators have appeared in the advertisements of the General Policies Committee of the anthracite operators.

No attempt will be made here to state what the cost of the producing anthracite has been since 1918, nor to pass judgment on the relation of costs to the prices charged either at the mine or to the consumer. There has been no comprehensive and impartial investigation made of this important subject, and to enter into any analysis of the cost figures which have been put forward by the operators would lead into a maze of technical criticism and qualifications covering their general comparability with each other and with the Federal Trade Commission basic figures; the representativeness of the figures; the methods used in their compilation, and so forth. With all of this the reader can well dispense. That there has been an increased cost of production since 1918, however, is evident from the fact that while there has been a decrease in production, there have been two substantial wage increases since October, 1918, and, likewise, heavy increases in the cost of supplies.

When considering the subject of costs put out from any quarter, there are several important factors that should always be kept in mind. One of these factors is that the average cost of mining and preparing anthracite coal is, as Mr. Smith has estimated, 80 per cent greater "in the long run" than the average cost for bituminous. The use of coal cutting machines is very much more extensive in bituminous mining than in anthracite. For example, of the entire bituminous output in 1918, 55 per cent was cut by machines. In some fields the proportion of machine mined coal rose as high as 95 per cent. Of the anthracite output, but 2 per cent was machine mined. In a recent address before the American Mining Congress, the vice-president of one of the largest anthracite producing companies made these further points:

> . . . In the anthracite mines . . . practically every miner employs a laborer, so that we have two men doing what one man would do in a bituminous mine. In the anthracite field we pump approximately sixteen tons of water for every ton of coal that is produced. It is estimated that we pump water, lift the rock and pump in air the equivalent of about thirty-six tons for each ton of coal. This coal, after is comes to the surface, must be cleaned and sized, and for that we have what is termed a breaker. These breakers are about 60 feet in height and have a 140 by 160 foot base. A modern breaker will cost anywhere from $1,500,000 to $2,000,000. It is estimated that to open up a mine in the Schuykill district which would produce approximately one million tons a year and to furnish the houses for the employes necessary to produce that tonnage would cost approximately $8,500,000. You will readily see that the investment necessary to produce the coal in the anthracite field is quite a considerable item.

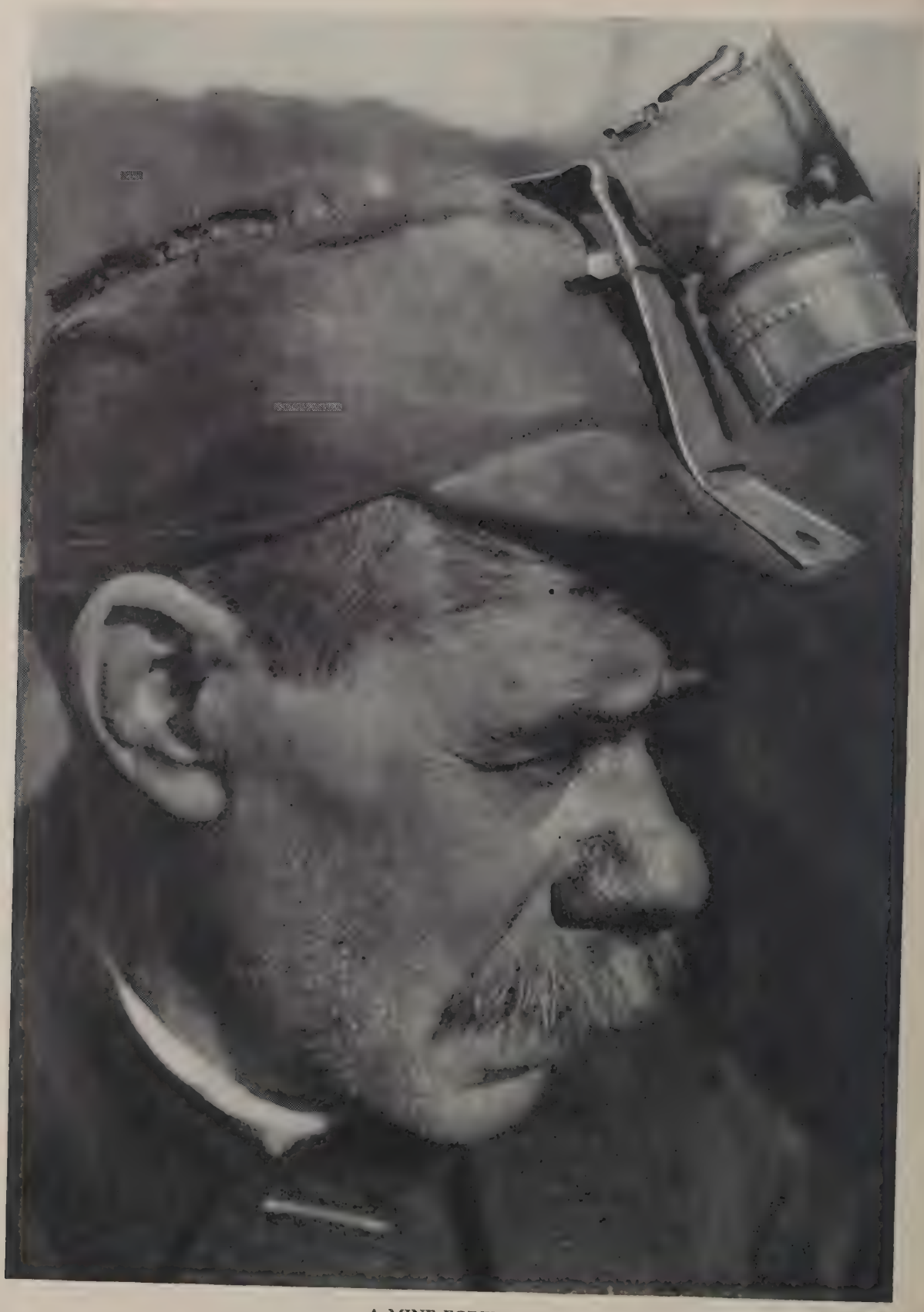
There is a wide range of costs of production among the different anthracite collieries themselves. During 1917-1918 it was found that the mine costs of the independents as a group were about 65 cents per gross ton higher than those of the railroad coal companies. But the mine costs of the various operators varied much more. From January to April, 1917, the cost of 90 per cent of the fresh-mined output ranged from $1.70 to $3.22 per gross ton (averaging $2.66), and from November to December, 1918, from $3 to $5.97 (averaging $4.84). The extreme ranges of the total output were far greater. Some of the individual operators had lower costs than certain of the railroad coal companies.[a]

Not only do the costs of the various anthracite operators differ widely but there is also much variation between the costs of different mines owned by the same company. Of the producers in 1917-1918, seventeen operated more than one mine. Five of these producers operated between 5 and 10 mines. Six operated a total of 118 mines or about 19 apiece.

There are also important differences in the sales realizations which the different operators receive

(*Continued on page* 1046)

[a] This wide range of costs is common in most fields, due to such causes as thickness of seam; pitch; freedom from slate; faults; character of operation, whether shaft or drift, amount of stripping, and distance of productive coal seams from surface; drainage; ventilation; age of mine; necessity of measures to prevent cave-ins of surface subsequent to removal of coal; variations in payment for royalties, and in the amounts of depletion, depreciation charges, and officers' salaries; difference in the use of labor-saving machinery (such as mining machines, electrical haulage, and so forth).



A MINE FOREMAN

This worker has spent forty-seven years in the mines

Mister Super

By HUGH ARCHBALD

HE smiled at me from behind his big mustache and doffed his cap in the old world manner as we passed. "'Allo, Meestaire," he said. My friend who was behind me trudging up the slippery path, commented when he caught up to me on top of the hill, "I noticed that he only vouchsafed *me* an 'Allo."

The incident, with its foreign pronunciation of English and its distinction in greeting, is typical of coal mining. For the coal mines have a population drawn from every country in Europe and to the foreigners the big boss is "Meestaire Supaire." Indeed with many of the English-speaking and the American-born, he may be so thoroughly Mister Super that they will be ignorant of his name.

Even the setting of the incident was characteristic. The mine was a mile behind; the office a mile ahead; the path had led down over a hill through scraggly second growth timber and stump land, across a brook yellow with the "sulphur water" discharged from the mine pumps, and then up and over another hill. Not always are office and main opening so far apart, but it is part of mining to take a path which leads through the brush to some unimportant looking second opening where you drop below ground into miles and miles of rectangulated openings in the seam of coal. For mining is part outdoors and part underground.

On a winter morning that path to the mine will be dotted with yellow lights as the miners, lamps lit, go to work. In the afternoon the sun will have almost set as the last of them go home, crowding together and jabbering away in foreign tongues. In summer there is a joy in being alive as you walk the path and a hate to drop down into the damp blackness of the mine. Winter or summer the temperature inside is the same and whereas in winter one comes out into the cold, in summer it is oppressive to come out to the heat of a dry afternoon.

The path to the mine does not always have the same character, nor the same objective. At a certain point you duck down so as not to bump your head on timbers at a drift mouth, and walk straight underground, passing through the short half-light into the dark of the mine, where footprints stay fresh for twenty years. Underground you exchange the trees for wooden posts set at even distances to steady the roof. The only thing which has virility enough to try to grow is the poisonous mushroom—the *Fly Agaric*—whose roots, having got a hold in the bark of the trees as they grew outside, stretch forth long, fuzzy stems that droop from their own weight and then turn upwards again in a futile attempt to reach the sunlight.

Sometimes the path leads along railroad tracks where it is windy in winter and hot in summer, to the head of a shaft where the swinging steel hoisting ropes wind swiftly up and down. At the head of a shaft, there is a hiatus in the path. You must ask for a "carriage" to get down inside. The hoisting of coal must be held up. The engines turn over easily. Lowering men is no effort. "Down inside" you step off into the openings in the seam of coal and pick up the path again within the area of work and yet far from the mining. It leads away, confined between the two rails of the narrow-gage tracks. You leave behind the men at the foot of the shaft and walk off into the dark, lamp in hand. The last man to be passed may caution you to look out for the trip coming down. You can see only about thirty feet ahead, as a light will not penetrate the darkness farther than that, and dangers come quickly. Cautioning against dangers is common and frequent. It is part of the comradeship of mining.

Coal mining is really a transportation problem underground, for the coal is brought out in many mine cars which hold a ton or two. In railroading on the surface you take no thought of the roof over your head; underground you are confined and must. You cannot bend to right or left on compound curves or make outs and fills. You take the grades as they come and drive straight ahead. The underground track may go straight for a mile or two, then seeking a certain section of the mine, turn squarely to the right on a certain switch for another third or half a mile and squarely again to the left for another thousand feet to end in a place a few feet wide where you will find two men blasting down the coal and loading it by hand into the mine cars.

Two men may load only fifteen tons in a day. That is the average figure for the country. The efforts of many men have to be put together to get an eight hours output of five hundred, a thousand or five thousand tons. Therefore many working places must be provided and many shorter, broader openings are turned off the longer, narrower haulage ways which reach fresh sections of the coal. Between each working place is left a pillar of coal to support the weight of the rock above. Locomotives and mules, distributing empty cars and gathering loaded ones, are the means employed to get an output from a mine. Of course there is more than ordering this transportation for those in charge. There is work to be assigned, there are supplies to be delivered, there is coal to be gathered. Besides the maintenance of track, the maintenance of pumps must be overseen. Always the work is on the move. There is a constant digging away and expanding and contracting. Scattered throughout the mine, working in ones and twos, are the men.

For a hundred workmen there will be one foreman. When work comes it falls entirely upon the one foreman to direct the work of these hundred men scattered throughout the mine. There will be as many roads and turnings in a small mine as there are streets and blocks in a town of twenty-five thousand inhabitants. Is well coordinated work possible in this physical situation? Hardly. Does well disciplined work occur? Supervision is very slight; the organization of the work is loose; good discipline is rare; morale, as we shall see, is smashed to smithereens by idle time.

The checkweighman is the representative of the men in unionized fields in tallying the output

I sat in a New York office the other day. The man at the desk pressed a button for the office boy who responded from another room fifty feet away; he followed that by telephoning to a subordinate who was twenty-five feet away. Such a possibility for quickly directing work was a contrast to the mines, where much of a boss's time is consumed in walking miles and half miles and quarter miles between details of work. A mine office may be a small building by itself. Sometimes it is a room in the end of a mule barn with a desk which is always dusty and racks for the blue prints of the mine. Sometimes there may be no office for a mine foreman and he must do his work, make up his time-book, study his maps and do his planning, sitting down wherever he can. There will be no office boy. Telephoning to a main office a couple of hundred miles away can be done in a shorter time than signalling to subordinates, for they must be on the move and cannot stay near telephone connections. So to get work done, you must pull on your overalls and fill your lamp and start on down the path for your rounds.

Any boss making the rounds of work has continually to answer the questions, "When do we work again?" and "How many days this week?" The path to the mine is not used every day by men going to work in the morning and straggling home during the day. Imagination must be used to get the human story out of the government statistics that show that for thirty years work in the bituminous mines averaged two days out of three. In boom times, perhaps, 10 per cent of the mines worked every day. In slack times only 5 per cent have steady work. For the ordinary mine, boom times are four days a week and slack times two or none. Only a few men work on idle days. There is a Sunday quietness about the place and the swish of the pumps and the whirr of the never stopping fan, sound loud as you make your rounds to see that these things are going as they should. There is time to stop and talk on idle days. There is always time to talk around a mine. It was a carpenter boss who complained, "I have been here fifteen years and this is the first time anybody ever told me not to let men hang around here and talk." Even during times of demand for coal, part days are so common (because railroads cannot give full car-supply) that you frequently find the entry in the diary of operation of a mine, "Worked all day."

The intermittent time prescribes the organization of the underground work. Idle days must be as cheap as possible. Bosses as few and cheap as possible. Skilled men as few as possible. It is the idle day cost which counts. You cannot have efficient work when you have unsteady work. You cannot train men to be all-round competent workmen with inefficient systems of work. It is a fact that miners are not wanted on road building or other classes of similar work and won't be employed if any other men can be obtained. The customs of mining render them unfit for all day, day after day work. The question was asked by one thoughtful observer: Could miners stand the modern discipline of work? They are not trained to it and the answer would have to be: Not in the beginning. In the army tests for intelligence which were carried on during the war, it was found that miners as a group rank next to the lowest; just slightly above laborers. A relatively small number of men underground are employed on transportation and on keeping the mine in condition. Underground work is crude craft work. The great army of foreigners could not have been taken into coal mining if it were skilled work. They dig the coal, clean it by hand, and load it by hand into the mine cars. It is a finished product when it leaves the miners.

In talking about coal mining as an industry, writers have often drawn similes from electrical engineering and spoken of the peak load and unequal loading. It is, however, hardly realized how in that circuit of work there is an overloading of the mine boss beyond his current carrying capacity and a consequent loss in pressure. In ditch digging you may find ten or a dozen workmen and one man supervising them, but in coal mining you customarily find one foreman over miners digging a mile of ditches in half a dozen places. Idle days will cave in mines just as they cave in standing ditches. You contend against the steady pressure of roof and water and gas with intermittent operation and scattered work. It is a situation which requires driving force as the main characteristic of a boss. Engi-

eering is at a discount. You must immediately bring an organization from no load up to full production.

"Gee!" said a motorman, "it is hard to get up at half past five when you sleep till nine or ten five mornings in the week, just because there's nothing to do."

"If you are working steady," said a superintendent, "you will find that your motormen get out a trip or two more a day."

More tonnage—lower cost.

The weighboss is a company man, and adds spectacles to a nice eye

Idle days compound troubles in many ways. At eleven in the morning you are likely to find a man coming out of the mine.

"Hey, Mike, where are you going?"

"Ah, me sick. Me go home."

"What's the matter with you?"

"Me hands hurt. No can dig. No work steady."

Tonnage falling off, costs mounting, the organization of the work going to pieces as men drop out. Bosses needed everywhere.

No one will probably complain that so great a quantity of bituminous coal exists in the ground. It is not a thing which can be manufactured quickly. But the big blanket which lies over a mine manager's work is that the chances of opening mines have been so great that too many mines exist and very, very few get full work. The labor cost is 70 per cent of the production cost. The struggle from the very first of coal mining has been to get cheap labor. The struggle on the part of the workmen has been to get highly paid for the little work that they have opportunity to do. The anomalous situation has resulted that the piece workers in the mines get paid at an earning rate per hour that is higher than mine officials: $2.50 to $3.00 an hour against

"WAITIN' FOR THE CARS"

a foreman's dollar. But as officials get more hours of work in a year, their yearly earnings are greater. During any period of full work there are always some men in the mines swinging a pick and shovel who draw more pay than a mine manager.

There are additional reasons why this anomalous situation exists. The basic, crude, craft work of coal mining has not changed in a hundred and fifty years. The state laws covering coal mining have required that the mine foremen be practical men who have come up in the work of the mine. You are tempted to believe that in these isolated communities crude conceptions of management have been handed down for decades. You frequently hear the boast about the coal mines: "We know how to fix them. We don't let them earn too much money. We put on more miners." The result of such a policy in the conduct of work is that the workmen are idle a good part of the time which they spend supposedly at work underground and, of course, as they are piece workers, must struggle for extra high rates to cover not only the days of unemployment, but also the unemployment within employment.

Dumping a car on the tipple

The men are accustomed to this situation and the problems of the mine manager are often complicated when he attempts to run counter to long established custom. Obtaining a high output per miner per day is not a thing which is customarily sought. The fact is that there is ordinarily so little attempt to keep men working to capacity, that men do not commonly come to the boss claiming consideration because they are good workmen, but because, "Me always pay rent. Me trade company store."

Most of the mine bosses are either British or of British descent. In some sections there will be a

"CUTTIN' A KERF"

eponderance of Scotch, in others, Irish or Welsh. o them there are only three types who work in e mines: English, foreigners and Italians. The nglish-speaking miners have more often been ought up in the mines, have started in when they ere very young and in consequence have more min- g skill. The Italians have a distinct enough char- ter to be classed alone, while the emigrants om eastern Europe, who were peasants in the old ountry, speak a different language and work in a ommon way and so are classed together. Often ne best leaders in the mines will be these foreigners, or they are accustomed to crude tools and hard ork. Moreover as farmers they were trained to nd their own work and do it too; not raised to the ad habits of the mines. But the understanding of uropean customs which is needed on the part of he managers of mines is shown by putting two eparate conversations together.

The first: "Those foreigners don't have any espect for the houses. Why down our way they re digging out under them and keeping cows and verything in there."

The second: "Shure, M e e s t a i r e. Shure. America? America fine place. You know. In old country not every- body keep cow. Got to get permission to keep c o w, pig, everything. America. Every b o d y keep cow."

Were work the only problem of the Mees- taire Supaire t h i n g s might be simpler. But there are the houses and stores. As s t o r e manager y o u m u s t know the prices of jam and hammers and per- cales and ladies' silk hose, besides the con- struction of motor gen- erator sets and centrifugal pumps and mining and men. Troubles brew when the personal likes and dislikes of women and children are not appeased.

The brakeman of a coal train. Car shortage is one serious cause of irregularity of employment

The houses provide many annoyances and some humors. During the boom period of the past few years when men where earning good wages, one miners came to an office complaining, "House no good. No strong. Cave in." Investigation proved that he had purchased a heavy nickel-in-the-slot piano from a saloon that had gone out of business, and the machine was too heavy for the floor on which he placed it. The economic law that after necessities are satisfied, excess earnings go into luxuries, was working in the mining town. Only it was a funny personal luxury.

Coal mining is distinctly a rural industry; an in- dustry located along branch railroads and often in regions where only mining exists. Moreover coal mines require large areas. A square mile of terri- tory will be needed for a relatively small mine. In consequence mines cannot be crowded together like factories in a city. There is a distance between even two mines. On account of the isolation the coal mining companies have to build the towns where the workmen can live and supply the stores where they can buy what they need. In some cases they may build the churches. If it is necessary to supply water, the companies must do this. The manager of the mines must supervise all these things. His is more than an eight-hour job because he touches the men not only while they are at work, but in their homes and all day Sunday as well. He moulds the conditions of the workmen's lives.

It is that which gives breadth to his job. And were there no outside limitations placed upon him by conditions over which there is no control, he might build well in every case. But he cannot for he has too many mines and by this the manner of his work is conditioned. The dependence of a whole isolated community upon one company for all that goes to make up life, makes a situation which lends itself easily to abuse. Welfare work and Safe- ty First have progressed during the past twenty years to a firm position. Halls for entertainment and places of amuse- ment and good schools are now maintained by many companies. Un- der some of the larger companies more of this work has probably been done than in other in- dustries. But in the run of mine towns one often finds the local hall of the miners' union is the only place of recrea- tion. It is there that t h e travelling troupes produce The Life of Jesse James with seven murders in every act. You find dances advertised to be held in the U. M. W. of A. halls of the va- rious mining towns: "Gents $1.00. Ladies free. Good order guaranteed."

For those whose life is coal mining, the isolation and separation of the mines makes it difficult to find a job. There is no near by work; not even min- ing. To get a job in another mine means moving to another town. And so to the mine manager come appeals from the wife of some workman, for it is the women who come to make appeals for mercy and kindness. Born in the old country she may never have learned to speak English and may come with a neighbor, both of them with shawls over their heads.

"She say won't you give her man his job back."

"No. I cannot do it. He loaded too much dirty coal and never would keep his place in order."

(*Continued on page 1054*)

The Miners' Program

By JOHN BROPHY

MEN are willing to risk their lives and spend their days in dangerous and racking toil. This it not the gift of a few unusual men. It is the steady average annual offering of half a million miners. But the Nationalization Research Committee of the United Mine Workers of America is getting in touch with men who are willing to invest the same boldness and persistence of effort in planning a good administration for their industry. They give ten, twenty, forty years to hard labor. We ask them to give but one hour a week to the firm thinking that would sweeten all the job.

The happiness of multitudes of common people rests on thinking out the problems of human relationship under the strain of industry. It is no revelation from heaven that is needed. It is the hammering out of some simple devices in administration. Man is an animal that organizes painfully and poorly. He grows irritable in large-scale industry. But as long as he elects to try for a thing called civilization—to come in out of the wet and eat cooked food—he must push on with his unnatural experiment and not lie down in the midst of the muddle. What are needed are some plain rules of the road.

The coal industry has been so disorganized and mismanaged that the situation in recent years has approached what big business men and stand-pat senators describe as a "catastrophe." Intelligent men, with the welfare of the industry at heart, agree that the "game is up"—the old game of speculative profits, over-production, shortages, sky-high prices, unemployment, gunmen, spies, the murder of miners, a sullen, desperate public. Unless unification and order enter the industry, there will be a blow-up somewhere, followed by drastic, angry, and frenzied legislation. The American Kingdom of Coal is today in as chaotic and explosive a condition as the states of Europe. No single constructive suggestion has come from the operators. No large leading idea has come from the public. The public is feeling intensely but is not yet thinking wisely.

The operators have a fresh explanation for the

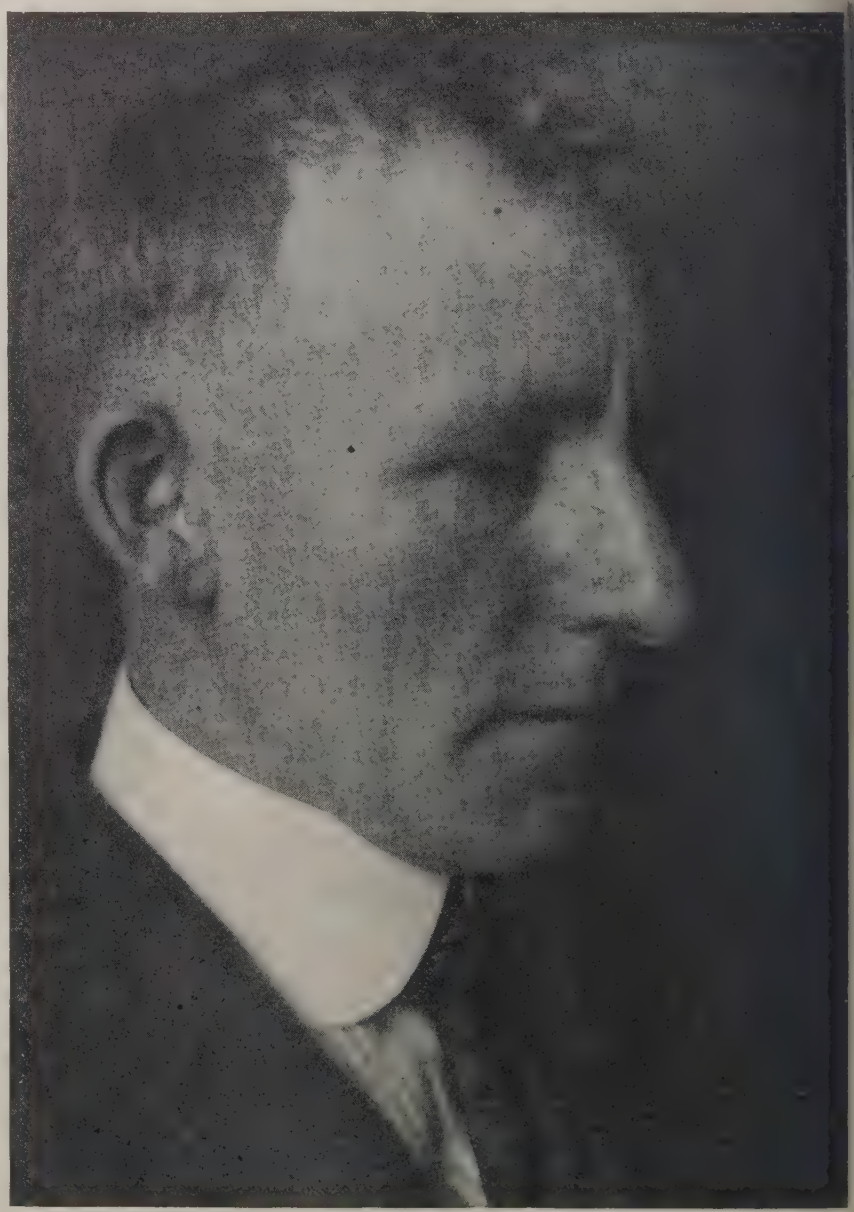


Photo by Hine

JOHN BROPHY, president District No. 2 United Mine Workers of America

Political leaders get on the front pages of the newspapers. But the public has only the vaguest notion of what men look like who carry the load of responsibility in the economic field. Here are representative district leaders

ual crisis as often as it rolls around. One year s car shortage, another year, high wages, then war, then government interference. Of thought plan and remedy they have offered none.

The only large-scale proposal has come from the ited Mine Workers of America in their demand nationalization. It is the only proposal that pples with slack work for the miners, high prices irregular supply for the consumers. It is now job of the miners to decide what kind of nation-zation they want. There are only three plans ssible for control and administration. All other ns are minor variations on those three. There only three plans possible, because, after the owners are bought out, only three interests are concerned—the public, the miners and the technical and managerial group. The plans differ in the proportion of power they give to each of the three interests.

Any plan of unification to be acceptable to a free people must fulfill several demands. It must not only give a good American life to the worker in the sense of wages, hours, safety, health, and all other living conditions; it must also satisfy his demand for a voice in management, for a share in the actual administration of the industry. The American worker has no use for the thing called state socialism. To have a group of politicians at Washington manage coal would be as distasteful to the miner as it would be to the long-suffering public.

Any plan of nationalization must give a larger area of control inside the industry to all the workers. Against great odds and powerful opposition the workers have won a measure of control, certain negative functions of management. Their method has been collective bargaining, and their instrument has been the union. The workers have won at least a measure of control over the rate of pay; the length of the working day; the details of the daily life as these details are manipulated by the employer's will, inside the mine and in leisure hours; the qualifications of the worker to be hired; the manner and tone of the manager; the right to inspect the conditions of the mine and, through the check-weighman, to inspect the amount of work done. These are real gains in personal freedom and economic status. They have been largely won by the union. The proof is that these rights are not granted in a non-union field.

But these gains are not enough for a worker in a democratically managed industry. He wishes the right to make suggestions on technical improvements, on car-pushing, on slack work, on output, and the right to take part in carrying them out. There will be no complete cooperation until his suggestions are welcomed and weighed. His goodwill and intelligence should be encouraged. They must be incorporated in any successful scheme

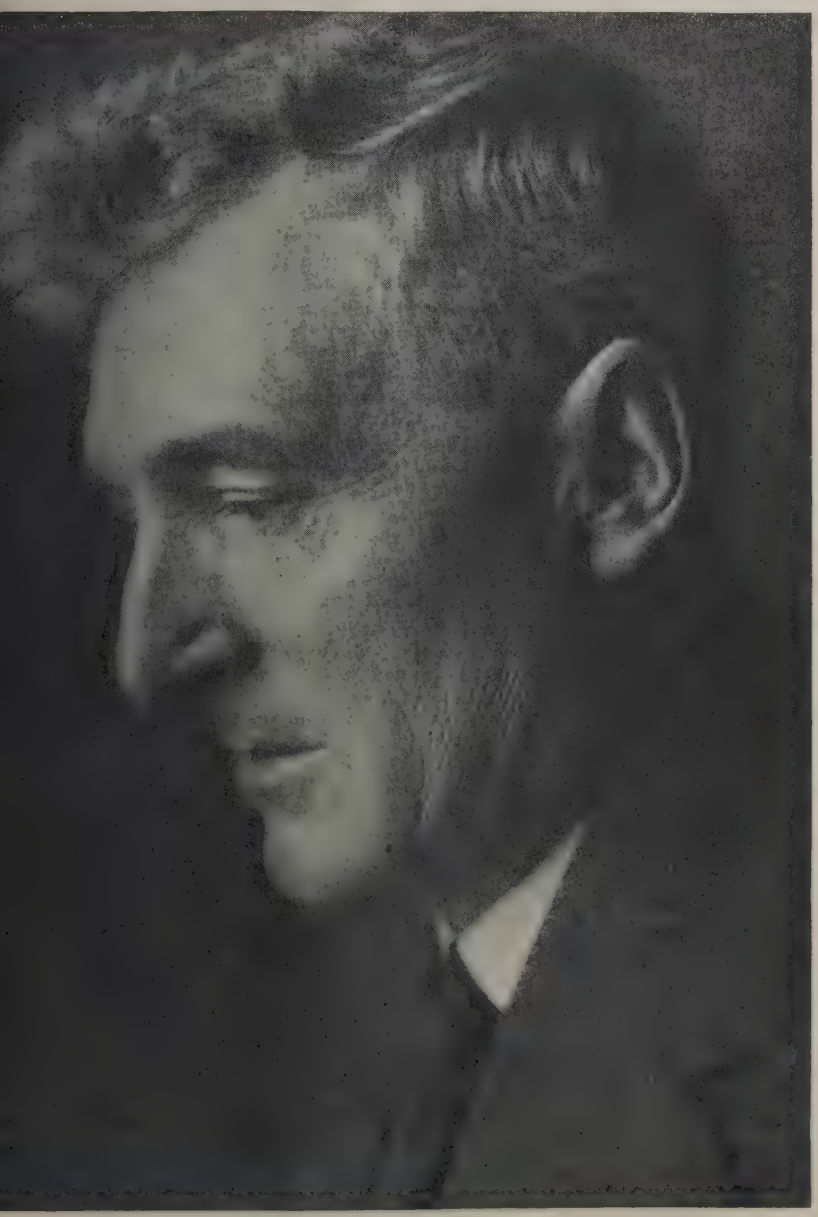
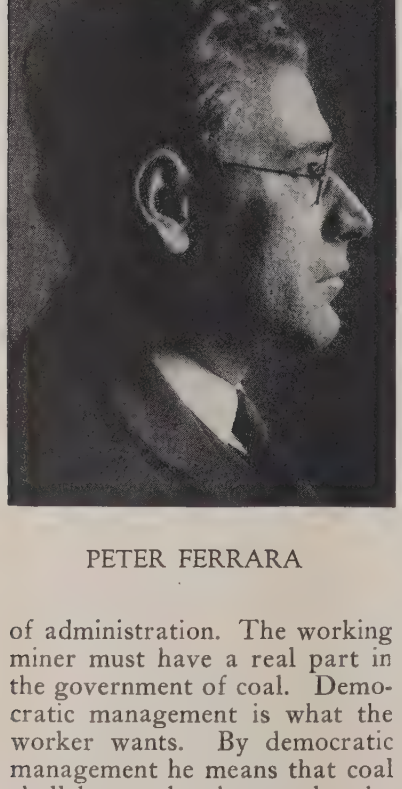


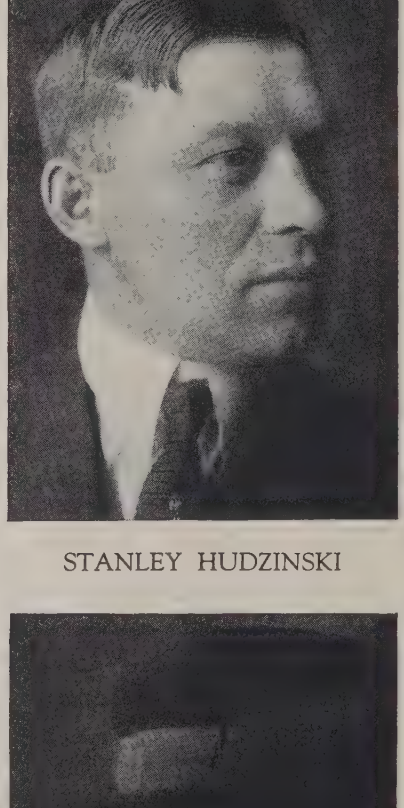
Photo by Hine

JAMES MARK, vice-president of District No. 2 (Western Pennsylvania)

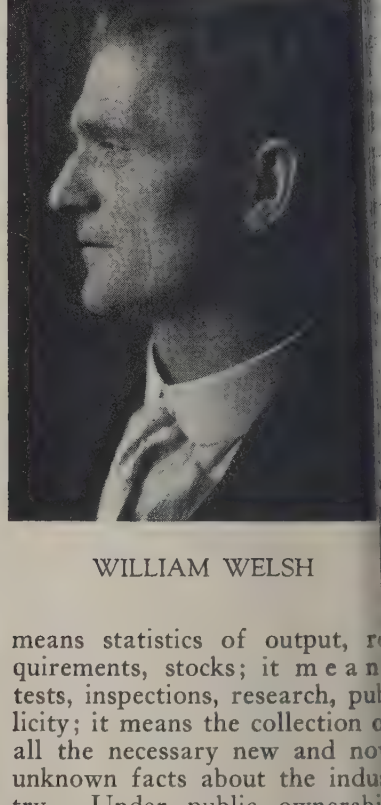
phy, Mark and their associates are known for their educational work among the rank and of the miners. They take up not only questions of hours and wages but also the larger problems of production and control



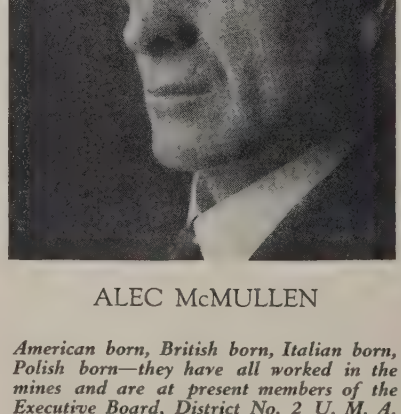
PETER FERRARA



STANLEY HUDZINSKI



WILLIAM WELSH



ALEC McMULLEN

American born, British born, Italian born, Polish born—they have all worked in the mines and are at present members of the Executive Board, District No. 2 U. M. A.

of administration. The working miner must have a real part in the government of coal. Democratic management is what the worker wants. By democratic management he means that coal shall be run by the people who mine it, who apply their scientific knowledge to its problems, who transport it, who sell it, who use it. If coal were run by a bureau at Washington, the miner would feel as far away from being represented in the industry as he feels today under private ownership. Democratic management must be the blood and bones of a plan of nationalization for the mines.

But any plan of nationalization must also include ownership by the public. Ownership of the mines by the miners would be as unjust and as disastrous as ownership by the coal operators has proved itself to be. The public must give the final decision on the large issues of the industry. But it is always ownership that gives this power of decision. So the public must own the mines.

Any plan of nationalization must include the separation of control from administration. The decision of policy is one thing. The job of administration is quite a different thing. To give control to the community as a whole, to safeguard the future as well as the present, to practice the American policy of conservation equally with that of business initiative—all this is in the job of control. Control means to know what is actually being done, as well as to order the thing to be done. Control means statistics of output, requirements, stocks; it means tests, inspections, research, publicity; it means the collection of all the necessary new and now unknown facts about the industry. Under public ownership and democratic administration the coal industry will find out how much coal the people want, how much of a supply is already in stock, what is the cost of mining coal, how much pay a miner gets, and what the correct price is for a ton of coal. These are simple, easy, fundamental and essential facts in running an industry. But not one of these elementary facts is known today. A permanent fact-finding agency or bureau of statistics will be one of the instruments of control. Control means a permanent federal inter-state commission of mines, and the eyes of the commission will be a bureau of statistics, with uniform accounting and a research group. At the head is the secretary of mines, a cabinet member.

The job of administration is to *do*. Administration means a national mining council. This council may be made up of three kinds of members. One group will be the administrative heads of the industry—financial, technical, managerial. One group will be the miners. The third group will represent the coal consumers, the consumers in other allied industries, and the community. The administrative representatives of this threefold national mining council may be appointed by the permanent federal commission of mines. The miners' representatives

be appointed by the United Mine Workers of erica. The public representatives may be ap- ted by the President.

here will be regional councils for the various e coal fields, such as the central competitive the tide-water districts, the anthracite, the hwest, and so forth. These district councils be made up on the same threefold lines of local utives, miners and consumers.

n the mine or group of mines, there will be e committees.

he power of the purse will rest with the perma- t federal commission of mines. The national ing council will present to the commission its get—receipts, expenses, salaries, wages, costs, elopment of new coal fields, prices on coal.

Any plan of nationalization must include the safe- rding of the union, and collective bargaining. e prime cause of labor disputes is removed by ionalization in the elimination of the profit tive. Nevertheless, such questions as the di- ion of the annual product and rates of pay for various grades of work, and the conditions of working place will always remain. So it will necessary to provide a special and separate ma- nery for collective bargaining. This machinery l be the same joint conference between miners l directors of the industry as has always existed union fields. Without this the workers would be ost as well off under the old system. The ers will be nominated by the United Mine Work- of America.

In other words, United Mine orkers of Amer- under nationali- ion, will not only rticipate in ad- nistration, but ust in addition intain its own and integrity as n independent or- ization of initi- ve and defence."

Any plan of nationalization must arrange for the determination of price, quality and quantity of output by the whole community and not by the group of workers. This means that the federal commission of mines and the secretary of mines will have the final say on these matters. This will be the public safeguard.

As a basis for comparison and criticism of American plans there is a series of foreign plans for the better organization of the mining industry. In one extreme plan, the Welsh miners outline a method of administration which gives them what amounts to 100 per cent control. In another plan—that of the Miners' Federation of Great Britain—the miners hold half control and the technical and managerial experts and the public hold the other half. The Sankey plan is a three-part division of power. So is the plan of the French General Federation of Trade Unions.

So far as the government of coal is concerned, the British coal owner had been more advanced in his economic concessions than the American miner had been in his demands. The proof is this: Baron Gainford, with the authority of the Mining Association of Great Britain, proposed a plan for profit-sharing and for a permanent fact-finding agency, on which the miners' union should have equal representation with the coal owners. So slight has been the pressure brought by American miners that until recently they have had no plan so definite, so radical, as the scheme of the coal operators of Britain.

But outlined above is the suggestion of our American miners' plan for nationalization. It is given, not as a final plan, but as something around which the miners may build their own program.

RICHARD GILBERT, Cornish-born

As Secretary and Treasurer of his district (No. 2) for twenty-three years he has one of the longest records in the country as a mine union official. He is a graduate of a botanical school in England

Robert Smillie of Larkhall

By SAVEL ZIMAND

I ASKED the porter at my hotel in Glasgow what train I could take to Larkhall. "Oh yes," he answered, "you want the place where Bob Smillie lives. It is only about a two hour ride from here."

Robert Smillie is a Scotchman, born in Ulster. He came to Scotland as a youngster and at the age of fourteen began work in a shipyard on the Clyde. At sixteen he started work in the mines. The Miners Federation of Great Britain is the work of his hands, and two years ago, as the chief exponent of its demand for nationalization of the mines, he was the center of interest before the Sankey Coal Commission. Today, in retirement, at sixty-five he stands out as the greatest miner in the world.

Where the River Clyde meets the Ayr, overlooking the great steel center at Mothewell and the iron factories of Wichaw, is the village where Smillie has worked and planned a life time. His influence has extended far outside the boundaries of the district, for just as the old miners who came here in the sixties and seventies were the disciples of Alexander Macdonald and brought with them to this country the idea of organization, it may be said that in the large a newer generation of miners from the British Isles have brought with them the ideas of Smillie's democracy.

As I entered Larkhall, I went into a store to buy an illustrated postcard and my friend asked the old lady who was running the store, "Do you know where Mr. Smillie lives?" The reply came, "Everybody kens him. Mr. Smillie's a fine man."

Smillie lives at 29 Miller Street, in a miner's cottage. The cottage is one of a long row of dwellings which extends through the street and on both sides of it. The inhabitants of these cottages work in pits of i neighborhood.

In Miller Street there is a country home belo ing to the ducal land owner of the district. So foreign visitors who come to see Mr. Smillie inqu there, being sure that they have picked out the ri residence. But a castle is not the place Mr. Smil chose as his home. His is a miner's cottage, c fashioned and simple. He chose it when he w working in the pit and has lived in it for twen years, and before that in the same kind of hou across the street for twenty-five—forty-five yea altogether. He has not at departed from the life of active miner. That is proba ly the thing which disti guishes him from some labo leaders. He lives among t miners, plays with the miner and suffers with the miner

BOB SMILLIE

Mrs. Smillie, a little woma looking strong and kin whom I had met before miners' conventions, opene the door. She said Mr. Smi lie was there, but he was i bed; he was resting by th doctor's orders. It was no long before Mr. Smillie cam down—a plain man, with face cast in tragic mold, rug ged and work-worn, imagina tive and with human sym pathy for those who labor fanatic in his loyalty to th workers, with a divine faith i the triumph of a better jus tice—a great moral force i the modern labor movement

Smillie has aged since I sa him two years ago. He ha had a complete breakdown i health. He had been tired fo years, but had not permitte himself to take a rest. Her is where the well-to-do an those born in leisure have ad vantages over the workin man. All the strength an power of resistance ar burned out of him because o the early struggles he had t go through. Later came th restless, busy activities of th labor leader. He traveled i the day time, not in Pullma

:s, but sitting on wooden benches and reading ›ugh and preparing his speeches and his work ing the day time. At night he talked, organized attended conferences. Only now and then was ›ossible for him to take a run up to his home n and taste of Mrs. Smillie's good cooking. He d to me, "You know, the life of a labor leader ›ends so much on the kind of life companion have and it is in great part due to her if I have ıe some little for humanity." Mrs. Smillie has ›ught up nine children, all alive, and standing for cause associated with their father's name.

Many of the miners of Smillie's district have igrated to America, and he told us how, during visit to the States in 1912, as a fraternal delegate the American Federation of Labor's convention, once found a whole group of miners from his n village in one Illinois mining town. In another n he described to an audience an eviction in ich he had taken part, for eviction of miners used be a common practice in Scotland. Smillie as a al union leader used to accompany the owner's ent to see that the miners did not oppose the evic- n with violence. "Our men were furious over s eviction practice," said Smillie, in a tone that nded full of remembrances of the old days when union was not yet the great industrial factor it today. His clay pipe in his hands, he continued story. "I told these Illinois folk the case of a ›tch miner. We knocked at the miner's door and one answered. We could distinguish from the tside the music of a harmonica played by one of members of the household. The door was bar- aded; that is what the miners used to do general- and the operators' man had to force the door. hen we entered we saw a young woman rocking baby and a young man, her husband, playing harmonica for the baby. The man greeted me th, 'Hello, Bob, what are you doing here?' aven't you heard us?' I said to him. 'We came evict you.' Of course he heard us too well," said illie. " 'Evict me,' said the young miner, 'go ead and do it.' The operators' man had to take the furniture out and when he came to the cradle asked the young woman to take the baby out so at he could carry the cradle down. 'No,' said she, ou will have to take the cradle and the baby to- ther.' And the poor man," Smillie continued niniscently, "had to carry down the cradle with baby. Suddenly, when I got to this point of story a man in this Illinois audience rose up and ›uted, 'You are right, Bob'—as if all I was telling to that time were only lies—'and the baby who s carried down is right here and working in the nes."

We were soon in the depths of discussion. Mr. illie asked me questions about his friends here, d about the labor movement. I asked if he did t think that mass action had failed with the defeat the miners in the last lockout. His reply was, Mass action has never been tried, how could it ve failed? By mass action I understand action the whole labor movement. That was not what ppened in the last lockout."

We wandered from this subject later to his own political candidacy in different districts. "You know," he said, "I have been a candidate seven times and always failed." I suggested that perhaps it has been of greater benefit to the workers that he was out of Parliament than in. He answered that perhaps it was. And then he added, "You know, it takes a really great man to resist the temptations of the House of Commons atmosphere. It takes a Keir Hardie. Many of them forget their missions after they sit down in the comfortable seats of the House of Commons."

And that brought him to tell me something about Keir Hardie to whom he is bound by a life-long friendship. "You know," he said, "Hardie was not fond of play." (Smillie is very fond of play in spite of his singular childhood and boyhood. He is a bowler, fisherman, golfer, and plays many other games.) Smillie continued, "Hardie was a very serious person. As he himself expressed it once, he never knew what it was to be a child—in spirit he meant. Even his memories of boyhood and manhood were gloomy. 'Hardie,' I said to him once, 'if you don't want to play anything else, let's buy marbles and play that.' To this Hardie replied, 'No, I am afraid you would cheat me.' "

SMILLIE has received the offer of high governmental position three times. During the war a telegram from Lloyd George came to his home asking him if he would not come to see him. Mrs. Smillie asked him what is was about. He replied, "It is either a seat in the Cabinet or prison." To this Mrs. Smillie answered, "If it is prison, then it is all right, but if it is a seat in the Cabinet, tell us when you come back so we can get out of here."

Mr. Smillie went to London to see Lloyd George. The Premier told him that the government would like to offer him the position of food comptroller which would pay about £5,000 a year. Mr. Smillie answered, "You know very well, Mr. Lloyd George, that I am not qualified for this position." And Lloyd George answered him by saying, "We know that you are. You are the president of the Miners' Federation of Great Britain, the greatest trade union in the world." And Mr. Smillie again replied, "Even if I was food comptroller, Mr. Lloyd George, you would not give me enough freedom to handle the situation as I thought right." "Oh, yes," Lloyd George replied, "We would give you freedom." Robert Smillie shortened the conversation by saying, "You are quite right. I am president of the Miners' Federation of Great Britain and I will remain that as long they want me and I have power enough to fill the position." He went to his hotel from there and found another offer from a member of the Cabinet, asking him if he might not suggest his name as minister of pensions. He gave the same reply as he did to the Premier. Two refusals of Cabinet positions in one day!

And now, after a long life of service, Smillie sits quietly in his home. "It may seem strange to you," he said, "but I have never had a private secretary. I have always attended to my corres-

pondence and work myself." In spite of his physical disabilities he still continues to work for his miners. So he writes me, "During the past fortnight I have had a trial run 'round when I addressed some ten meetings in different parts of Scotland and England. I was rather surprised to find the enthusiasm with which I was greeted everywhere and it caused some feelings of regret within me that I was not twenty years younger in order that I might have strength to help forward the good cause. I feel that I am not going to be able to undertake the amount of work which I formerly did but I hope that I may be able to give some help if need be.... My sight is not improving and this has made it difficult for me to undertake much reading or writing."

While the breakdown in his health caused by mental sufferings during the war and the strenuous over-work must have been the main reason for his resignation from the presidency, I would venture to suggest that this was not the only reason. Disagreement in policy over the miners' strike of the autumn of 1920 was perhaps one of the reasons. Smillie opposed the strike. He declared if the miners could not prove their claim to the wage advance they were seeking, they had no right to it. He therefore urged the acceptance of the offer of the government to submit the case to a third party for judgment.

One of his intimate friends, W. Straker, who is also a member of the executive committee of the Miners' Federation of Great Britain, writes in the monthly circular of the Northcumberland Miners' Mutual Confident Association, "Whether or not the miners' refusal to accept the leadership of Mr. Smillie on that occasion has had anything to do with his resignation I cannot say; but I would not be surprised if it had. He came back at the miners' urger request, although in ill health, and almost as soo as he was back we refused to be led by him. H warned the conference of the dangers to the federa tion if we acted on the strike policy. He pointed ou that the organization—built up during thirty years— might be driven back to the condition of things exist ing at the time of its commencement."

He was reading to me Robert Burns, whose poetr he knows so well and delights in so much. Th hour of twilight was approaching. The Scotch sun sets are very late. Smillie was seated at the fire side in miner's garb, with clay pipe in his mouth and thinking—thinking of what he probably though every day of his life: the miners and their lot— thinking without bitterness, in the spirit of simple devotion and love towards his fellow beings. The room was getting dark and the light colors came from the reflection of sunset and the red glow from the hearth. We could hear the tunes played by the bag pipers outside. Smillie's sad face lit up, al the gloom and sadness seemed to disappear. "You know," he began, "to have lived amongst my people here for forty-five years and to have been a labor leader, which means to have been watched step by step by my people and still after all those years to be considered as belonging to them and being one of them, is the greatest thing to me in life." Then he suddenly rose, lifted his hands up and repeated full of gentleness, "These things have meant a lot to me."

When we left the house the moon was shining on the Irish coast and the miners in the village street were talking in broadest Doric about their daily work.

29 MILLER STREET, LARKHALL

Two Days from a Diary

By POWERS HAPGOOD

uesday, August 16, 1921

ABOUT two o'clock I started for No. 40 mine (non-union). Two men were leaning against a fence, waiting to see the mine foreman, hen I arrived. One of them was looking for work, it the other wanted to see the foreman to tell him was leaving.

"This company is the worst I ever worked for," is man said. "My buddy loaded a little bit of dirty al and we both got put on a ten-day rest for it. his is the second day of the rest and I can't wait ound for eight more days before I can work. And hen a fellow is working he can't make anything. he X—— Y—— Company pays regular union ices for tonnage, but they only give you about ree-quarters weight on your coal. Look at them g cars over there. You're lucky if you get two tons n them and often you get only 3,600. They hold ree tons easy. I take up two feet of bottom coal r fifty cents a yard too. No sir. No more Berind White mines for me."

His partner then wandered up. Both of them ere young Americans whose home was at Fulton un in Indiana County. The mines in that section the country are organized.

"I tell you, you wouldn't see these conditions in e union field where I come from," said the more lkative of the two men. "You wouldn't do dead ork for nothing and you wouldn't take up two feet bottom coal for fifty cents a yard. You'd get id full weight for what you've loaded. If you had grievance like we got now you'd bring it up in the cal union and the pit committee would take it up ith the company. But the company's got a man here it wants him here, and the man can either take or leave. I'm going to leave."

Another man joined our group and sat on the railg of the little bridge which crossed the mine tracks ear the drift mouth. He was powerfully built, lean, ell dressed, and I wondered whether he was a boss a worker. I asked him if he was looking for ork.

"Looking for work nothing," he answered. "I'm aiting to see the foreman to tell him I'm through."

He was another who could not wait for ten days ecause he had let a little dirt get by in his coal. He ed to be a pit boss himself before he came to this gion.

"Look at those cars," he mused as he sat on the iling. "Two ton is all you can get on them and metimes you don't get that."

Vednesday, August 17

I DID not go into the mine this morning, as I had decided last night to take the day off, as far as e mine was concerned, and look for a new job rther down the Black Lick.

A train left Revloc at 8:04 going toward Indiana wn, and I took this as far as Vintondale, a few ations past Nanty-Glo. I had been off the train only about five minutes in Vintondale before I was hailed from behind, as I was walking toward a mine and coking plant owned by the Vinton Colliery Company (non-union). On turning around I beheld a young man in riding breeches and a gray shirt, with a revolver protruding from his hip pocket and a visored cap on his head. When he came nearer I noticed some sort of insignia on his cap, in which were the initials C. & I. which I was told afterward meant "Coal and Iron."

"Would you mind telling me what your business is in this town?" he asked, stopping a few feet in front of me.

"Just lookin' for work," I responded.

"What are you, a miner?"

"Yes, lookin' for a job."

"Where are you from?"

"Oh, out Indiana way."

"Well, you'll find the mine office right across the tracks by the coke ovens," and with that the policeman turned around and walked up town.

I was somewhat puzzled as to what kind of policeman this man was. His uniform was the same color as that of the state police, but it was somewhat different in appearance and the insignia was not the same. I concluded he was a policeman paid by the coal operator at Vintondale, and this I found out later was correct.

While waiting for the mine foreman I walked up town to Colliery No. 2 to look this mine over. On a little platform near the mine I saw a young man resting, so I walked over and began talking to him. He was from Patton and was looking for work. He said he had just been told by the foreman at the No. 2 mine that all the places were full. I asked him whether he had been questioned by the policeman.

"No, he ain't seen me yet," the young man answered. "I heard about him, and I've kept out of his way. If he sees you he'll keep track of you till you leave town."

When I returned to the office of the big mine about ten-thirty, the foreman told me he'd hire me if I could find a place to board. It took me only a few minutes to locate a fine place, with a room to myself for fifty dollars a month, and I then went back to the office.

When I saw the boss again, an unusual thing happened and one which will make me keep my thoughts to myself in the future if I want a job very badly. While the foreman was writing down a few answers to his questions, I thought it would do no harm to ask him about the conditions of work.

"What do you pay here?"

"Seventy-two cents a ton."

"Do you pay anything for 'dead work'?"

As soon as I asked this question the foreman threw his pencil on the table and said, "I guess you don't want a job bad enough to get one here. You might as well go along."

"I don't see anything wrong in asking about the conditions of work," I objected. "I didn't say I wouldn't work if you didn't pay for dead work. I only wanted to find out what the policy of the company is so I'd know what to expect."

"Don't make no difference," answered the foreman, "you might have waited at least until you'd seen your place and got started and found out about it. You don't need a job. You might as well go along."

He remained obstinate in spite of my remarks about being fired just after being hired for asking about working conditions. It was very disappointing to lose this job as I undoubtedly would have found out some interesting things, but still the action of the foreman in firing me because I wanted to know what the conditions were was in itself an interesting bit of information about non-union mines. The scale has evidently been cut here, as 72 cents a ton is 23 cents lower than the price in the union mines and also in the non-union mine where I'm now working at Revloc. Revloc is still paying the scale established by the union.

WHILE I waited in the station I fell in with two other men who were also waiting for the train. They were Hungarians who spoke good English and were trying to interest the Hungarians in Vintondale in a colonization scheme.

"Did that policeman ask you all kinds of questions?" I asked.

"I should say he did. He came up to us this morning. 'What you selling,' he said. We told him, and he did not even know what colonization meant. 'Well, you can't sell colonization here,' he declared. 'We leave town then,' I told him. 'No, you can't leave,' he said. 'You got to go see the mine superintendent first before you can leave.' So the policeman he took us up to the big office and into the super's room. We had to explain what we were doing. 'Well, you can't sell your scheme here,' the super said. 'The company owns the town and yo got to get out. You leave on the next train.' S here we are, waiting for the next train to take us ou of this damn town."

Just as the train pulled in, the policeman cam riding up and sat in his saddle watching who got o and off.

"He's acting in his rights, all right," said one o them. "The company pays him to watch the trai for them and they can keep any one out of town jus the way you can keep a man out of your house. The own the town and can do as they please."

This train went only as far as Wehrum, a few miles from Vintondale, and we got off there. Many men were loafing on the grass near the station, and I learned from them that the one mine in Wehrum is owned by the Lackawanna Coal and Coke Company, which also owns the town.

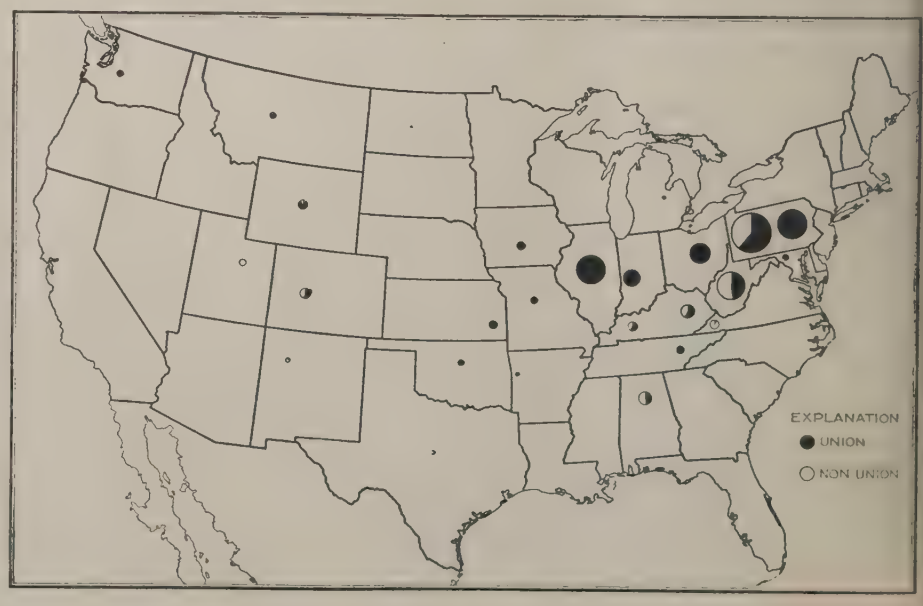
"This town's owned more solid by the company than Vintondale," one of the men said. "There's not a single thing in Wehrum except the railroad station that the company don't own. And they've got three or four policemen too, but they're not so strict. A man can come in here unmolested, just so he don't start organizin' the union."

The mine here is working only one and sometimes two days a week, and I decided it would be useless to try for a job. This is a non-union mine and the men are working for seventy-two cents a ton and reduced company time rates. None of the group I talked with seemed much interested in unionism, either for or against. They seemed, like most other non-union men I've met, too inactive mentally to consider the question. They'd probably rather have a union than not have one, but, so far as thinking about how they're going to get a union is concerned, they're just too lazy to exert themselves. When the mine works, they work, and when the mine doesn't work, they sit on the grass, talking about whatever amuses them and spitting continuously.

FIGHTING STRENGTH OF THE UNITED MINE WORKERS

Operators and union leaders disagree as to the strength of the union in certain districts. Perhaps the best test of strength was the way the several fields responded to the general strike call of November, 1919.

The circles on the map indicate the producing capacity of each state or district. The black segments show the proportion closed down during the week when the strike reached its maximum. The white segments show the proportion which continued to operate. Since 1919 the union has lost members in some districts, particularly in the region south of the Ohio. The anthracite region, shown by the solid black circle in eastern Pennsylvania, is almost completely organized though it was not affected by the strike order of 1919.



The White Revolution

By CHARLES P. STEINMETZ

HEAT is energy; light is energy; motion is energy, or power, as we often call it. That is, there is a thing called "energy" or "power," which in the form of motion turns the wheels of industry and propels the railroad train or the steamship, the lley-car or the aeroplane; in the form of light nverts night into day; in the form of heat cooks r food and makes our houses habitable in winter; the form of chemical energy makes steel out of n ore and converts clay into aluminum. Without ample supply of energy or power our civilization uld quickly come to a standstill.

We cannot create energy, so we have to take it ere we find it in nature. Practically all of our ergy supply comes from the sun, in the form of ht. Aeons ago the sunlight shining on the prime- l forests of tree ferns was stored up as chemical ergy in coal, and is now, when we take the coal t of the mine and burn it to produce heat, re- vered by us as light or power.

It is less than a hundred years since coal has been ed extensively as fuel, and now the annual con- nption has become almost inconceivably large. ie amount of coal mined in one year in the United ates alone, if used as building material, would ild a wall all around the United States larger an the famous Chinese wall by which in bygone nturies China attempted to protect its northern ntier. The power contained in this coal would sufficient to lift the wall two hundred miles high. ie amount of coal existing in the earth is so vast at this huge annual consumption makes a barely preciable inroad upon it. But even if our coal pply should last for hundreds of years, some day will be exhausted. What then? Will civilization me to a standstill and man lapse back into barbar- n? Or will other sources of power be found? ere is a second great source of energy available, ich has been opened up by the electrical engineer ring the last generation: the water powers of the untry. It is to these we shall have to look for lp when our coal supply begins to fail.

They are inexhaustible so far as in using a water wer we do not consume it, because the sun con- uously replenishes it. The heat of the sunlight aporates the moisture, and the vapor rising in the mosphere condenses as clouds and comes down as in on the hills, and, gathering in the river, turns e machinery of the water power station and gives back the energy of the sunlight as electric power.

But how much energy is available in the water powers of the country? Is it enough, when coal is exhausted, to supply the power demand of our civilization? The total available water powers of the United States have been variously estimated as from fifty to one hundred million horsepower. Such estimate is uncertain and open to the possibility that, when need compels, future advance of engineering may enable us to utilize water powers which cannot now be used. We can however estimate a maximum possible value, beyond which we could never hope to reach. We know the rainfall and the elevation of the different parts of the United States, and from rainfall and elevation we can estimate the foot-pounds of energy represented by the total rainfall of the country. Allowing then for the amount of water required by agriculture, and a minimum loss by seepage and evaporation, we get the maximum possible amount of water power which could be produced if every raindrop which falls anywhere in the United States were collected and all the power which it could give on its travel down to the ocean developed. This amounts to about three hundred million horsepower.

Thus the maximum power which could ever be developed in our country from water, if every drop of rainfall were utilized, must be less than three hundred million horsepower. That is a vast amount of power. But it is just about the total which we get out of our present coal consumption for all purposes—power, light, heat, metallurgical work, and so on. Thus we see that the total water power of the country, even if all of it could be developed—which is not possible—would be only just enough to replace our present coal consumption, leaving nothing for future increased needs of power. This is rather unexpected because people have always hoped that in the future when the coal will have been used up, the water powers of the country will take the place of the coal. But we know already that all the water powers of the country would not be enough.

UNLESS, then, new and as yet unavailable sources of energy be made accessible, the hope of the future must lie in saving power and in increasing the economy of energy consumption, in order to get along with the limited supply. This is to a very great extent possible, as our present use of energy is extremely wasteful; three-quarters or more of the energy of coal is really wasted, and at present our engineering knowledge is not sufficient to avoid all of this waste.

Consider the largest single user of coal, the rail-

The Grand Central Terminal in 1906, before electrification

roads. If the railroads replaced the steam locomotive by the far more efficient electric traction, from one-half to two-thirds of the coal would be saved, smoke and dirt would vanish, and without any increase of track a material increase of traffic could be handled, due to the quicker starting, better control and greater power of the electric locomotive.

The huge steam turbine turns out power with half of the coal consumption of the average smaller steam engine. If we replaced all the small power sources throughout the country with electric motors receiving their power from huge steam turbine stations, another vast saving would result. This is being done increasingly. Often we could save all the coal, by deriving the power from a hydro-electric station.

In heating houses we really use more than ten times as much coal as necessary. We could save nine-tenths of it, but we probably will not do so until forced to it by a failing coal supply, for to save would require a radical change of building construction. There is, for instance, a great waste of heat in the gases going through the chimney. There is a waste of heat through walls and doors and windows. But the greatest waste is due to our present inefficient methods of ventilation. We must have sufficient ventilation. That is, we must let the foul air out and take in fresh air. In most private houses we do this in a haphazard fashion by periodically opening some door or window. In large buildings we have properly arranged ventilating systems. In either case however we throw out the warm foul air and take in cold fresh air, and so over and over again we have to heat new masses of fresh air and all this heat is thrown away in the foul air which we exhaust. Usually over 90 per cent of all the heat from our furnaces is lost. Although we must replace the foul air with fresh air, there is no reason why we should throw away with the foul air all the good and valuable heat which it contains, and not supply from it new heat to the fresh air. If it were properly arranged, we should take the heat out of the foul air before we exhaust it, turn it into the incoming fresh air, and so heat the incoming cold air by the heat of the outgoing warm air. This recovery of the heat is called a "regenerative system of heating." We could do this by passing the outgoing warm air around the outside of the pipes which bring in the fresh air, and so warm the latter by the former. Then all the heat which our furnaces would have to supply would be that lost through the walls, doors and windows. By proper building construction this loss could be made slight, so that a very small amount of heat would warm the house—so small indeed, that it would be economical to heat houses electrically, economical to own a "house without a chimney," even though the price of electric energy must always remain many times greater than the price of coal containing the same amount of energy.

THE solution here as elsewhere is, "do it electrically." Electricity is a form of energy which can be produced economically from hydraulic energy

The same place as it is now, photographed from the same point of vantage

well as from steam energy; can be sent over long tances, that is, transmitted with high efficiency; be distributed and supplied and put to any use h very small losses, in a simple manner by means apparatus which are reliable and require little no attention. This is the reason we are now tering the electrical age.

The problem which the engineers have to solve protect our civilization from a collapse by a lure of the energy supply is therefore a vastly eater one than most people realize. It is not rely to develop the water powers of the country, "white coal," and to transmit and distribute this wer electrically. All the water powers would not, we have seen, generate enough energy even for present needs. It is the vastly greater problem organizing all the country's energy supply, from l mine and waterfall, from oil well and all other rces. It is the problem of transmitting and dis- buting and supplying the energy to the places ere it is needed, and of converting it into the form which it is used, and all this in the most economical nner. Whether as light or as heat, as a small k fan motor giving a cooling breeze on hot sum- r days, or a huge ten thousand horsepower motor the steel mill crushing ingots into structural steel ls as if they were soft putty—all the way through, guiding principle must be economy, the saving energy to make the best of the limited supply. d this is being done electrically by converting ture's energy supply, whether coal or water power, o electricity, and then by transmitting and distributing it as electric power. If, when traveling through the country, you see electric transmission lines pass by you in increasing numbers, you then realize that they are doing what the coal trains have done and are still doing: that is, carrying the country's energy supply, without which our civilization would cease, from source to user.

But when, in the distant future, with the exhaustion of the coal supply and an increasing energy demand of an increasing civilization and increasing population, our energy supply will have become insufficient in spite of all economies which the engineer can devise, civilization will not fail; we may trust that the engineer will find new energy supplies. There is a source of energy a thousand times larger than coal and water powers together—the energy of the sunlight. As yet we know no way of collecting and concentrating it into usable form, and the mechanical methods thus far tried (by reflection, or by collecting the heat under glass) appear hopeless. But methods at present unthought of may be devised. Perhaps some biological engineers, some future Burbank, may by progressive selection through centuries develop a plant life which, fed by the carbon dioxide gases of combustion, will grow with great rapidity and in growing will collect in its structure the energy of sunlight in the form of chemical energy. When burned, this may make available the energy as heat energy, and return the matter as carbon dioxide gas to raise further "energy crops," thus in a closed cycle perpetually supplying unlimited energy from the sun's rays.

EDITORIALS

TO the dwellers in the cities, when you speak of the miner, there flashes up a picture of some "desert rat" leading a pack-laden burro in search of gold. Coal mining is a thing far from these common stories. And yet it is a thing that is so little known, so in the dark, and so beyond the experience and imagination of the common man, that if you are a mining engineer and try to tell of an incident, which even after many years still brings your heart up into your throat, the tale will pass uncomprehended. But if you spin some yarn of how the wildcats at night leap upon the mules as they come out of the mine and kill them by a bite on the neck? Why, yes, that is the sort of stuff that city dwellers have read and so believe. The mines do not work at night.

There is no virgin wildness in a coal mining region. It is likely to be intensely populated in spots, with an unmistakable coal mining air given by dead trees and unpainted houses and dirty roads. The population which will be centered around even a small mine will be numbered in the hundreds. Though the distances between mines is measured in miles, they are relatively few miles. The influence of one community will overlap that of another, destroying the wildness and yet not constructing a well rounded countryside.

COAL is the creator of policy. It determines international relationship alike with the home affairs of the single nation. Its energy operates on the western peoples, whether the industry is wisely managed or muddled. The development of coal has led to the upbuilding of the tribal hoard, the national surplus, by which alone social betterment is made possible. Coal has already brought a measure of social betterment not only to the possessors but to those other countries woven into the international fabric.

But in the coming of coal with its bounty, there has remained the age-old element of human strife. The nations quarrel for the ownership of coal basins. And inside each nation there is perennial trouble between the owners and the diggers of coal. After a century of coal, the most powerful and militant labor group in each coal-producing community is the group of miners. Like the Scots, they have been hammered and defeated, but never conquered. With keen initiative, the operators have pioneered and exploited the industry. With daring and resolution the miners have cut and loaded coal. In that concerns the commodity coal, there has been no lack of good-will and determined effort. But reaping the social value of coal for the community there has been and there remains a maladjustment. It is harder for the human race to think useful than to take hazards and to labor fiercely for a life time.

THUS far in the story of mankind, the usual method of finding the right way for "getting on together in decency has been to try all the wrong ways, one by one. So, in coal, the organization of the industry has always evaded the central need, that of establishing an administrative plan to satisfy human desires. This means first of all a cooperative search for the truth, for the facts.

For this special number we asked the students and participants in the industry to state the little that is known, and the wide ranges of what needs to be known. We did not seek for villains in this drama of coal. There are a number of excited men among the miners and the operators shouting their parts. The public sits as bored spectator until its bins are empty or its pockets.

What stands in the way of the facts?

The coal lobby at Washington.

The concentration of miners' leaders on punishing Lewis, Murray, Howat and Farrington in factional fights.

The lack of brain power in the representatives of the various Congressional Committees.

The inertia of the public.

What are the immediate causes of the annual shortage and high prices in coal?

The seasonal demand for coal (resulting in car shortage) and the high cost of storage.

What are the evils which the coal owners state?

Strikes, inordinate demands of the miners, a menacing union, government interference, lack of coal cars.

What are the ills the miners name?

Several of the many ills can be summed up in irregularity of employment—slack work. The list of ills would include a low wage; over-work as the variant of underemployment; unnecessary accidents; car-pushing; industrial disease.

How would an engineer characterize the industry? Enormous waste, over-development, mismanagement—a public utility conducted as a speculative competitive business venture.

Through the piping and wiring of power from the mine-head, by the breaking of coal into its multiple products, great vistas of social gain are opened to the eyes of these technicians. Meanwhile the industry is locked in a sorry strife for group mastery of a public utility. All the rich human values are blown away on these gusts of hate that sweep up from underground. The impending strike, if there is a strike, will be fought on issues by no means clear to the public. Wage-reductions, wage-increases, wage-continuances—these are mere controversial phrases, until the facts of financing are disclosed. To do nothing in solving the muddle of coal has now become a dangerous experiment. But to act blindly will not save us.

WITH the anthracite interests sitting in conference—operators and men continuing the practice of negotiation by which they have kept the peace high twenty years—interest centers as we go to press on the bituminous fields. Here the miners are desirous of a joint conference but the operators as a group are apparently eager for a fight; they have balked at negotiating as to a new agreement—regardless of their commitment so to do in the wage agreement which expires on March 31.

In giving wage rates, the wage rate for a day or a fortnight or a month sinks into the mind, as if that wage rate were paid through a normal year. But the year in soft coal is always sub-normal. So the wage rate has to be keyed to carry nearly one hundred days of idleness. Even the demands of the miners—inserted as a gesture by the extremists—for the five-day week and the six-hour day are a poor statement of a real need—the need for regular work through the year.

What is a miner's annual income? That is the fertile question.

In 1919 the average annual wage in bituminous was approximately $1,200. "In 1920, however," as Mr. Tryon shows elsewhere in this issue, "a sharp advance in the wage scale was awarded by the Bituminous Coal Commission, and in that year, which was also one of enormous profits for the operators, the earnings of the miners (bituminous) reached the highest point on record. Precise data are lacking, but there can be little doubt that many men made from $1,400 to $2,000." In 1921 "the industry as a whole probably lost 139 days, or more than after the financial panic of 1893" and it is unlikely that the annual wage in any district averaged higher than the $1,400 minimum given for 1920. In many districts the bottom altogether dropped out of the working schedule, and 1921 was a year of desperate hardships which have continued into the new year.

It is the 1920 wage scale, thus discounted by broken time, that it is proposed to deflate.

Obviously the pressure of the bituminous operators to make a drastic cut, practically down to the rates of 1917, will not necessarily be just and will not necessarily bring peace to the coal fields. Here we enter the real difference between operators and miners. Work has gone to the non-union fields, say the operators. (It has.) By cutting wages, they say, we shall cut costs, and in so doing we can recover business. Therefore, by cutting wages, the miner will have a larger income at the year's end than he is now getting.

The miners reply that the method of cure is that of a major operation, which is scientifically skillful but biologically deadly. They maintain that even with the customary schedule of employment the result of the proposed cut would not give them a living wage, or one that they regard as sufficient incentive to severe and dangerous toil.

And after all, is a living wage the ultimate hope for the miner?

The well known anthracite operator, John Markle, is quoted this very month as advocating not only a living wage, but a saving wage—a wage on which the miner can lay aside some reserve for health, old age and the well being of his family.

THE public is interested in cheaper fuel to help forward the industrial recovery. Is the way out to underpay the miner or, as Mr. Hard points out, to free and organize the industry? Even with greater reductions than now in the costs of living, can the public endorse ethically the demand of the bituminous operators for wage cuts until the industry is organized so as to assure steady work? Can we regard wage cuts, which mean household cuts and community cuts, as the sole solution of cheaper fuel? Rather the public should demand the facts as to investments and profits of operators, as to the miner's mede of life, as to over-development and over-manning and wastes, and more, as to the economies possible in the journey of the coal from the mine-head to the consumer. That these basic facts are not known, Mr. Wing bears expert witness. What is needed is a government commission comparable to the Sankey inquiry, and a permanent compulsory fact-finding agency growing out of it.

Strike or no strike, this need exists. A compromise will at best be temporary because it will rest on guess-work, not on the facts. The goal of the industry is a steady supply of coal to the consumer at a reasonable price; regular work and an adequate annual income to the miners; a proper return to management in a well organized industry and the safeguarding of coal for future generations—these are the interests concerned in a public utility. And the satisfaction of these interests, as Mr. Bruère makes clear in reviewing the work of the Fuel Administration, rests in a wise step-by-step unification of the industry.

THE COAL CRISIS

The Position of the Operators

By C. E. LESHER

HOW much of a fight will the United Mine Workers put up to prevent deflation of their wage rates? For nearly a year and a half public opinion and every economic force in this country have been focused on deflation—deflation of inventories, wages, profits, interest rates and credits. Secretary Hoover says[1] that in the twelve months of 1921 the United States wrote off more than fifty billion dollars in national inventory and he has estimated that living costs have dropped from the peak in 1920, when they were nearly double those in 1914, to a point but 50 per cent over that base.

It is an undisputed fact that the wage rates of union coal miners have for two years been at the highest level ever attained for all classes of labor in that industry. It is also a matter of record that for both anthracite and bituminous coal the terms of the present wage contracts (this is written on March 1) were set by federal commissions in 1920, and that in each instance wages were pegged up from lower levels only by so much as would add the fiscal dollars to the wage rate sufficient to compensate for higher prices for items making up the living costs.

In the same manner and for the same reason the federal Fuel Administrator during the war granted wage increases to the coal miners. Just as now, so on every possible occasion for five years the United Mine Workers have demanded many things, but the demand for higher wages because of higher living costs is the only part of their program for which they can claim success. In their seeking for a living wage they have not been opposed by the coal operators or by the public. It is only in the extremity of their demands that they have met opposition. In 1919 the miners demanded a 60 per cent wage advance and the six-hour day and five-day week. They sought to force so preposterous a program on the country by a strike at the beginning of winter. A commission appointed by the President took measure of the relative positions of inflation in living costs and in the bituminous coal mine wage rates and granted an increase of 27 per cent—nothing more. The same process was applied in the anthracite region and the increase awarded by another presidential commission was but 17 per cent. These awards were made in 1920, when the cost of living was at its peak.

Forget if you can the distress of a year's economic contraction, and assume for the moment that instead of dropping 50 points, the index of living costs had risen 50 points and now stood at 250 and not at 150. What would be the attitude of the United Mine Workers? Is there any doubt but that they would be demanding wages in consonance with the rise? What then is their position with facts as they are? Have they indicated in any way a willingness to readjust their wages in harmony with the times?

No. In the anthracite region the union is demanding an increase of 20 per cent. In the soft coal regions they are demanding that there be no reduction. In both they have demanded a six-hour day and a five-day week, punitive overtime and other changes in working conditions that would add to the cost of coal. The whole country is pointing "thumbs down" on every effort to sustain inflation or prevent deflation. The United Mine Workers, loins girded for the fray, defy the country. There is no spirit of compromise manifested with a strike vote hanging overhead.

That, Dear Public, states the case.

WRITING this a month in advance of publication, I shall attempt no prophecy as to the outcome of negotiations that may transpire before April 1, nor shall I guess as to the real extent or time duration of the strike. Of one thing I feel confident, and that is the form of the outcome. Whether it be now or a year from now, the union miners must agree to an adjustment of their wages in conformity with what the country can afford to pay them. The strength of their organization and the vaunted superiority of their generalship will not prevail against the solid determination of the coal operators backed by inexorable economic law and against the awakening public opinion in a matter so basic.

THE country says "Cut the cost of coal." That cost is expressed by the equation: mine price plus delivery price. The delivery cost is railroad freight, and in the case of the coal in our homes, the retailers' margin, which is in turn, largely haulage cost. With these items we are not concerned in this discussion. The cost at the mine to the consumer is composed of labor cost, other production and selling cost, taxes, interest on borrowed money and profit to the producer. If a middleman intervenes, his costs and profit will be found in the mine price, for coal in carload lots is sold at the mine, the consumer paying the freight.

Why not have the producer cut the price out of profit and thus satisfy the public without asking the miner to dig it for less? There is nothing original in this suggestion, for the miner is bringing it forward now, as of old. Let us see how far we can go in this direction. The 1918 income tax reports of 1,551 bituminous coal producers, tabulated by the Bureau of Internal Revenue for the President's Bituminous Coal Commission, show that 22 per cent of the number reported losses and 11 per cent made less than 5 per cent on invested capital. The combined output of this number was one-ninth of the tonnage represented. The report further discloses that another third of the number, representing nearly half of the tonnage, made net incomes of between 5 and 25 per cent on invested capital. The companies whose incomes were over 25 per cent on investment were in the minority. The published report of the commission contains this significant statement:

> The companies reporting very high rates of return upon investment are all small concerns with investments of only a few thousand dollars, whose net income represents to a large extent the earnings of the owners for their own labor and management.

The year 1918 was probably the best ever enjoyed by the bituminous coal industry and yet the average return on investment was 9.72 per cent after deducting taxes.

Similar data for 1919 and later years are not available. No one is in position to make assertions with respect to the profits of the coal industry in such detail for later periods. A statement recently published by the Bureau of Internal Revenue covering 1919 shows with respect to the coal industry that 1,518 corporations reporting had a net income of about ninty-nine million dollars and an invested capital of $1,175,891,000. The return was between 8 and 9 per cent.

Yet 1918 and 1919, compared with any pre-war year, were prosperous ones for coal. Compared with 1921 they were magnificent. Data were compiled by the National Coal Association based upon cost reports and filed in February with the N. C. A. by its member operators. They were presented to the Interstate Commerce Commission[2]

[1] Statement before the Interstate Commerce Commission, Feb. 3, 1922.

[2] Supplement No. 1 to Morrow's Exhibit—I. C. C. Docket 13293.

February 28 at its specific request. ese data show that the cost of pro- tion of 133,398,503 net tons of minous coal in 1921 was $391,- ,946, or an average of $2.94 a This was one-third of the total out, and nearly one-half the coal mmercially sold in the year. For coal the producers received 5,157,476, or an average of $3.04 on. The difference is ten cents a . This is the producer's margin. m it must be deducted federal es, interest on borrowed money , lastly, profits. In these figures represented every important field, on and non-union, operations ge and small, high and low cost perties.

What a magnificent sum, the rem- nts of a dime, to divide with the blic!

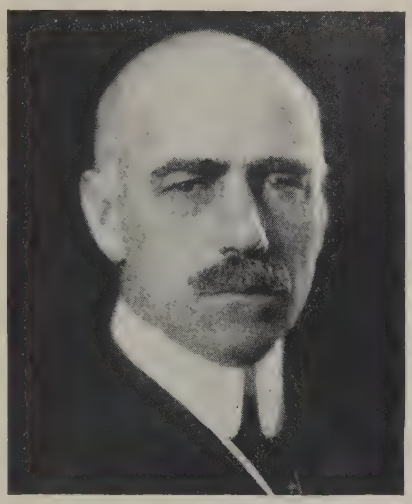


Photo by Goldensky

S. D. WARRINER, chairman
General Committee Anthracite Operators

Photo by Harris and Ewing

J. D. A. MORROW, vice-president
National Coal Association

THE bituminous coal operators did not start the year with the intention of making so little profit. Competition ced them to those straits. One-third of the soft coal ne capacity of this country is manned with non-union or, and with wages reduced and costs lowered the op- ators of these mines forced the market down. The cited erage of $3.04 per ton received represents a range from .67 in January, 1921, steadily downward to $2.56 per n in December, when the average loss per ton was 35 nts. The index of spot prices of bituminous coal maintained Coal Age shows a decline from 270 in January to 187 December, 1921, compared with the average for the 12 nths ended June, 1914, as 100.

Save only those protected by high freight rates or bul- arked by contracts at comparatively high prices, the union ines have not operated for more than a year save at a loss. Many have been closed since the beginning of 1921 and e men either have been idle or have moved to non-union lds where work at lower wages has been found.

BUT surely those rich, domineering anthracite companies have put prices so high that they can pay the miners more oney and not raise the cost to the public. They have no n-union competition driving them to extremities. They ere directed by the federal commission in 1920 to in- ease wages 17 per cent and they promptly added a dollar the price of our coal, and have kept it there. Let us see. he price of hard coal was rigidly fixed by the Fuel Ad- inistrator during the war. Every increase since then has en warranted by the increments to cost. The space allot- d to me for this article prevents my submitting detailed idence. But if you will accept my statement for this and amine the Census figures for 1919 (the only figures ailable) you will judge the measure of profit this level costs and prices is bringing the anthracite industry.

Complete figures for 1919 as published by the Census ow the production of 88,170,000 net tons of anthracite oduced at a cost for major items of $324,148,000, an erage of $3.68 per net ton ($4.10 per gross ton). Dol- rs realized from the sale of this coal were $364,084,142, average of $4.14 per ton ($4.65 per gross ton). The fference between these averages is 45 cents per net ton 50 cents per gross ton. The Census figures do not in- ude such important items of costs and out of pocket ex- nses as rents, insurance, workmen's compensation, deple- on, depreciation, selling commissions and interest on bor- wed money. A conservative estimate would be that ese items are 20 cents per gross ton. If none are deduc- ted the figures indicate an average return on invested capital of 9 per cent, and, when corrected by additions to costs of charges not shown on Census schedules, the average shrinks to 4 or 5 per cent. There is not much opportunity for trimming here. In fact, it is a perfectly fair statement that should all anthracite be sold without profit to the producer or wholesale distributors, the householder would scarcely notice the difference.

It is important to emphasize that whereas the operators of unionized bituminous coal mines have in the strenuous competition offered by non-union operators an impelling motive for lowering costs and meeting the clamor for cheaper coal, the hard coal producers have no such motive. The anthracite operators are sensitive to public opinion. The present generation is trying to live down the autocratic reputation given this industry by the late George Baer. Whether it be fear that the government may take over the industry or earnest desire to be fair to both stockholder and consuming public (and you will believe either as you like) the fact is that the miner and the public are getting a pretty fair deal.

WHAT are the wages that the miner demands be increased 20 per cent? Census figures again show that in 1919 147,372 "wage earners" received $210,289,473, an average of $1,426 for the year. In this average are included boys as well as contract miners. To this the President's commission added 17 per cent in 1920, which would, since tonnage produced in 1921 was almost identical with that of 1919, indicate an average earning of more than $1,600.

To this the hard coal mine labor demands an increase of 20 per cent!

Even later figures are available covering earnings of labor in the bituminous coal mines. In Illinois, 109 mines producing 1,277,325 tons in the first half of December, 1921, worked an average of 6.7 days. They employed 42,193 men and of this number 22,469 earned $50 or more each in the two week period. The average earnings for this group were $82.46, at the rate of $165 per month or nearly $2,000 per year. Seventy-five per cent of the payroll went to men earning $50 or more for a two weeks' pay period. These are union mines and in a field that, because sore pressed with non-union competition, worked in the last half of 1921 but 45 per cent of full time and in January of this year but 49 per cent.

What the union is demanding is a cash bonus financed by a sales tax on coal.

THE COAL CRISIS

The Demands of the Miners

By W. JETT LAUCK

THE fundamental claim of the mine workers in the wage negotiations and adjustment of two years ago was for adequate rates and for employment opportunities which would enable them to earn a living wage. This year, as the time has approached for the negotiations of a new biennial agreement, the mine workers have again put forward the same demand. This is the real significance which should be attached to the wage proposals formulated by the Indianapolis convention of the United Mine Workers of America.

The mine workers' conception of a living wage is modest. The opportunity to earn a wage which will purchase sufficient wholesome food; ordinary clothes for warmth and for decent appearance, so that the children may go to school and other members of the family may properly participate in church and other public gatherings; ordinary housing and adequate fuel—this constitutes the basic demand of the mine workers. A small margin for savings against sickness, old age and other contingencies of life, is also desired. No luxuries are included in the mine worker's economic aspirations. His claim is based upon the necessities for health and decency according to American standards.

This basic wage and the opportunity to earn this minimum amount is requested for the unskilled or semi-skilled worker in and around the mines. Above this minimum, differentials are requested extending upwards according to the skill, experience, hazard, and productive efficiency of other classes of employes.

IN its findings as to wages, the award of the Bituminous Coal Commission of 1920 was remarkable. The principle of a living wage was accepted and the declaration was made that its application was desirable so far as was then practicable. Although the mine workers only claimed that the cost of living had advanced 85 per cent since the beginning of the war, this maximum was disregarded, and rates were established at a level of 97 per cent above pre-war levels. In making its award the commission also expressed the hope that the cost of living was about to fall, and added that "we realize that the miners have borne an increase above their advance in wages and consider the possible future decline in living costs as an offset for their losses."

The award of the commission amounted to an actual increase of 27 per cent over pre-existing rates of pay. The commission obviously intended that the purchasing power of the mine workers should remain until April 1, 1922, at a point at least 27 per cent higher than the pre-strike purchasing power, and that any increase in purchasing power due to possible lower price levels should serve as an offset to their past losses which arose from the failure of rates of pay during the war period to increase as rapidly as the cost of living.

A comparative study, however, of opportunities for employment and changes in cost of living, shows conclusively that with the exception of October, November and December, 1920, the average purchasing power of the earnings of the mine workers has at no time exceeded that fixed by the commission as proper and has even, at times, fallen greatly below the pre-strike purchasing power, or the real wages of the mine workers before the commission made its decision.

Taking the past two years as a whole, and after making allowances for the decline in living costs, it is clear that the real earnings of the mine workers have fallen below those contemplated by the awa of the Bituminous Comm sion, and very much belo the requirements of a livi wage.

The Anthracite Co Commission, which was a pointed by the President the summer of 1920 to a just wages in the hard co regions, did not follow t precedent of the Bitumi ous Commission in accepting the principle of a living wag but adopted the policy of advancing rates of pay in accor ance with increases in the cost of living. It merely co tinued for two years, therefore, standards of living whic were already inadequate. Even should the present demand of the anthracite workers be granted in full and should th cost of living continue to decline, it would require anothe two year period at least to establish American standards o living for day workers in the anthracite fields.

THE present demands of the anthracite workers are therefore, conservative. Those of the bituminous work ers are even more so. The soft coal miners have no im mediate prospect for a greater opportunity to work than the had in 1921. But should conditions improve and should th average record of the past thirty years in this branch of th industry by some fortuitous circumstance be repeated (o approximately 215 days of employment) and should a mine worker achieve the impossible by working every day ever under these inconceivable conditions his earnings and rea wages would barely approach the status of living wage. A conditions actually are, the bituminous mineworkers on the basis of retaining their present rate of pay will be fortunate in the immediate future if they can earn sufficient to meet the requirements of a bare physical subsistence for themselves and their families.

IN considering wage scales in the coal industry, however, the fundamental point which should be constantly borne in mind is the fact that bituminous mining is normally a part-time indusrty. The annual capacity of the mines is now officially estimated at 800,000,000 tons in the face of consumption requirements of only 500,000,000 tons. So theoretically the demand for coal can be supplied by working only half time. Actually under normal conditions there is a loss of about one-third of the possible working days. During the thirty years ending with 1918, the soft coal mines have lost ninety-three days a year. In addition, there are violent seasonal fluctuations ranging from the peak of demand for coal in autumn and winter to the slackness in spring and summer requirements.

Wage rates, therefore, have a direct relation to the opportunity for employment. If the mines are only in operation a restricted number of days and even then only sporadically, daily and tonnage rates to the workers must be proportionately high so that an adequate income for the year may be earned. The irregularity in operations is the underlying reason for the demand of the mine workers for a six-hour day and a five-day week. He believes that this will distribute, regularize and guarantee a larger measure of employment.

RELIEF can come only through governmental intervention or from the initiative of the industry itself. The most immediate and practical remedy would be the incorporation in the forthcoming wage adjustments of a provision requiring operators, when employing their forces, to guarantee employment for a specific period, say three months or longer,

ther the mines were open or not. r-expansion, with the smallest and dislocation to all concerned, ld thus be gradually eliminated. duction would proceed upon the s of the best situated mines. fits would be more uniform. The e workers would be given an portunity to work regularly and ler normal conditions. The ex- capital and labor in the industry uld, by easy stages, be absorbed by er industrial undertakings.

The tremendous wastes to the pub- resulting from the over-expansion the industry has been nowhere ter expressed than in an address t American Mining Congress, on tober 19, 1921, by George Otis ith, Director of the United States ological Survey. He said:

> Our soft coal business has perhaps be- me the classic example of irregular em- yment, for the average bituminous mine in the United States n expect to run only about 215 days in the year....
>
> The wastes in the mining industry due to irregular employment ould rather be regarded as a series of leaks that must first be id bare and then stopped—such leaks as the unproductive hours the worker, the higher daily wage that must go with the short ar, and the fixed charges and depreciation not only on idle mine ants but on idle cars and other railroad equipment. No account- nt can add up the total waste through such a line of leaks, but ugene McAuliffe's bold attempt gave him reason to believe that e annual cost to the nation is not less than $500,000,000.

This waste is roughly equivalent to one dollar for every on of soft coal consumed each year in the United States. t prevailing rates of pay the average labor cost of producing ton of soft coal in 1921 was $1.97. If the losses of er-expansion and irregularity were eliminated, wage rates uld be increased 50 per cent without additional cost to the nsumer, or existing wage rates could be maintained and the ice of coal to the consumer reduced one dollar per ton.

THE United Mine Workers of America has been the only stabilizing and constructive force in the industry. Prior the first interstate agreement in 1898 conditions in the dustry were choatic. Relentless competition in the face of excess supply of coal had eliminated profits and reduced ages to a starvation level. Some of the more far seeing erators of that time, including the late Senator Mark anna, realized that a union agreement would be beneficial least in stabilizing competitive conditions by bringing out uniformity in labor costs. The principles of labor ganization and recognition of trade agreements in the tuminous coal industry were thus inaugurated.

The interest of all parties in the future is concerned not ly with the maintenance of these principles but with their tension to the whole industry.

THE constant menace to peace and stabilization in the soft coal industry is the non-union operator. By ex- nding hours of work and reducing rates of pay, his object to undersell the union operator in competitive markets cause the union operator is handicapped by the observance human standards of work and compensation. Moreover e non-union operator's attitude towards the public is one sham and hypocrisy. He is constantly declaring that the nited Mine Workers is a "lawless organization" with hich he will have no contact, and that he will provide the blic with coal in the event of a strike in the union fields,

Photo by Clinedinst
JOHN L. LEWIS, president
United Mine Workers of America

THOMAS KENNEDY, president
District No. 7, U. M. W. of A.

when, as a matter of fact, he is fundamentally fomenting industrial warfare with the object in view of increasing his own profits by taking advantage of and exploiting the necessities of the public in the event of a strike.

There would be no general strikes and little industrial warfare in the coal industry were it not for the activities of non-union operators. They are engaged in a constant conspiracy against the best industrial usages and practices, and against the standards and precedents which have been sanctioned by enlightened public opinion. Public policy and the common interest demand the incorporation in the next wage agreement of two principles contained in Senator Kenyon's recent proposals: (1) the right of mine workers to organize and bargain collectively through representatives without discrimination, and (2) that any decision as to wages and working conditions should be applicable to the whole industry or to both union and non-union districts.

THE "check-off" system is a custom of the soft coal industry which has prevailed in this country and abroad for at least the greater part of a century. Probably it would be found to go farther back if records were available. It was not conceived as the means of giving practical financial support to an alleged conspiracy between the operators and the mine workers of the Central Competitive Field when the first agreement was made in 1898. Indeed, no reference was made to the "check-off" in the agreement of 1898 and there is not the slightest indication that it was even discussed in the conference. Already it had become a matter of usage and practice and accepted as an observed custom.

The "check-off" is undoubtedly a source of financial strength to the union. It constitutes an economical and assured method of collecting assessments. There is nothing wrong in the practice. It has been recently sanctioned by the federal court at Chicago as legitimate. It is not based on the "closed-shop" principle. Complete unionization is not dependent upon it, as experience in the anthracite field has demonstrated. The emphasis which has been placed upon it in recent discussion has arisen from the efforts of the non-union or anti-union operators to weaken or disrupt the United Mine Workers. If we accept unionism, as all experience demonstrates we should, as a stabilizing and desirable force in the coal industry, then we must accept the "check-off" as a worthy and desirable institution. Opposition to the "check-off" is only another form of opposition to the union regardless of the character or activities of the labor organization.

Sayings of Henry Stephens

TRANSCRIPT BY CARL SANDBURG

If you got enough money
you can buy anything
except . . . you got to die.

I don't like meatheads
shootin' off their mouths
always wrasslin' 'n wranglin'.

The cost of things to live on
has gone too high.
They ought to be brung down
where they's more equal like
with other things.

One summer
potatoes was peddled
around Springfield here
for fifty cents a bushel;
another summer
I paid four dollars a bushel.
Tell me why this is.
We got to work to eat.
And the scripture says:
"Muzzle not the ox that
treadeth out the corn."

Human is human.
Human may be wrong
but it's human all the same.
There's time when a scab
ought to have his head knocked off
his shoulders.
But first we ought to talk to him
like a brother.

I pay a dollar a month to the coal miners' union
to help the street car strikers.
It costs me $25 if they ketch me ridin' on a car.
That's all right.
Las' Monday night I busted somethin' in my left arm
I walked, mind you, I walked a mile and a half
down to the doctor's office.
It kep' on swellin' an' when I got home
my wife had to put salt and vinegar on
to get my sleeve loose.

They always did say
Springfield is a wickeder town for women
than Chicago.
I see 'em on the streets.
It always was
an' I guess always will be.
Fifty per cent of the men that gets married
makes a mistake.
Why is that?

You're a white man
an' I'm a negro.
Your nationality don't make no difference.
You say you're Swede—I don't care.
If I kill you
Everybody says:
"Henry Stephens. a negro, killed a white man."
I got a little Indian blood in me
but that wouldn't count.

Springfield is Abraham Lincoln's town.
There's only eight mines out of twenty
In Sangamon county
Where the white miners
Let a negro work,

If I buy a house right next to the Peabody mine
That won't do no good.
Only white men digs coal there,
I got to walk a mile, two miles, further,
Where the black man can dig coal.
The United Mine Workers
Is one of the best or-gan-IZ-a-tions there is.
United means union.
And union means united.
But they's mines runnin' twenty-five years
And the white men never lets the negro in.

I remember when we was tryin' to organize.
We met in barns an holes,
We met in the jungles.
I used to go to all the meetin's them days.
Now we meet downtown in a hall.
Now we's recognized by everybody
Fur one of the most powerful or-gan-IZ-a-tions
Is the United States.
I don't go to meetin's nowadays
But if they's a cause to strike for I'll strike.
I'd live in the fields on hard corn for a just cause.
Yes, for a just cause I'd live in the fields
On hard corn.

THE BLACK AVALANCHE

(*Continued from page* 1006)

work and of idleness and that they could not count upon any long uninterrupted period of continuous employment.

"Your mine is a strange mistress," said Jim Pennington, when I asked him to tell me, from his miner's point of view, why work in the mines was so irregular. Pennington is a big, sharp-jawed man, whose mustache overflows the greater part of his face and whose eyes, which became reminiscent as we talked, glow like a dully burning coal. We were in the sitting room of his four-room company-owned house on one of the narrow creek beds that run between high hills down in West Virginia. Opposite the row of houses was the only street, the railroad track. A black hog was rooting in the mud near Pennington's front steps as I entered. Tin cans strewed the ground and there were no sidewalks anywhere. The whole prospect was utterly barren and neglected. Inside I found Mrs. Pennington and the five children; these now retired into another room, hushed and listening. Pennington continued:

You think you get to know her, and then, come to find out, you don't. I've been a miner forty odd years. Went in when I was eight; don't many of them do that now. I've cut coal with a pick and I've cut it with a machine; seen some big changes in my time I tell you. Guess I've worked in most of the coal fields in this part of the country—Ohio, Indiana, Illinois—yes, and I've visited the under side of a hill in some other states, too.

Folks don't realize how many things there are that make a miner's work unsteady. Suppose we go to the mine some morning and the boss says "Boys, there's water in that place where you was working yesterday." That means we wait till it's pumped out.

Maybe there's been a fall and the roof's lying around over everything. The slate and dirt has to be picked up.

The boss may say "Boys, the track didn't get laid up to that new face yesterday." You can't use your mine cars without track to run 'em on. So we have to wait till the track gets laid.

pose the cutters don't go in ahead of you and cut your coal
e base of the seam, so you can blow it down and load it on
ars. Sometimes you have to wait for them.
the ventilation don't clean your smoke out, you have to wait
e you can put in another charge of powder. That's bad man-
ent. Ventilation is a mighty important thing. You may not
orking, you see, all the time you're in the mine. And you get
only for the coal you blow down and load.

ennington mentioned other causes of lost time, such as
tage of railroad cars, accidents to the mining machinery
lack of orders for coal. Of these he said that shortage
ailroad cars was the miner's worst enemy, for in the
minous field there is little storage of coal. Pennington
tinued:

ow many days a week do I average? It's hard to tell: maybe
e, maybe four. It's so irregular, you know. Some months you'll
k pretty good; and some months you'll get only five or six days.
an can't keep steady under those conditions.

The causes of lost time among miners are analyzed sta-
ically by Mr. Tryon elsewhere in this issue. Here my
pose is only to suggest that this intermittency may prop-
y be looked at through the eyes of the miner himself.
ere he stands, ready and willing to work, and his work
snatched from him; forces beyond his control render him
e. Would it be surprising if he became as irregular in
it as the job that he follows, if he bent to the form set
this work. The miner who often cannot tell in advance
ether the month will hold few or many days of employ-
nt, and who loses annually a third of his earning time
rough enforced idleness, may lose the power to stick at the
b. Should he change his occupation, the result is likely
be disastrous to him. A custom exists among soft coal
iners that is unusual. The man who loads the coal, who
es into the mine and actually breaks down the seam, is
ely to think of himself as the disposer of his own time.
he awakes in the morning feeling a bit grouchy, or wants
do an errand in a nearby town, he may stay away from
e mine altogether. This is easily capable of exaggeration,
d labor unionism no less than management has tried to
iscourage it, but it is a custom that is still prevalent. I
ould merely like to suggest that there may be here a rela-
on of cause and effect. "If you don't know whether you're
oin' to work or loaf next week," said Jim Pennington,
you get a bit irregular in your habits yourself."

But irregularity of employment has lately been aggravated
to acute unemployment and want. If one wishes to see
he contrast between the old and simple conditions of the
armers and settlers who lived in the West Virginia hills
nd the present alternation of industrial intensity and languor
et him visit these fields. In the Kanawha district produc-
ion sank in December to 10 per cent of the full-time out-
ut; in the New River district to less than 6 per cent. Men
n the New River district who frequently put in a total
f more than 3,500 hours a week, spent exactly 203 hours in
he mines during the week that ended December 3. The
epression started about January, 1921, and has continued
ith only brief interruptions down to the present time. "Be-
ween 94 and 98 of the 119 mines in this district shut down
ompletely during the last three months of last year," said
he secretary of the New River Coal Operators' Association
o me.

The distress that has accompanied this enforced idleness
s bitter in the extreme. I have already given instances of
t. George Hudnell had a few pickled beans and some flour
n the house, all the food for a family of six children. "I'm
romised a day's work splittin' palings up in the hills," he
aid, "if I get that I can fix to pay for the flour." Mrs.
Henry Belcher was feeding her large family—including a
oy of two—Mexican red beans and fat pork; two meals a
ay was their limit. Mary Cowhorn, a widow, lay ill in
ed the day I called; she had been tramping through the
ain in search of food for her five children and had been
ompelled by a cold to give up. Mrs. Ferratt, whose house-
hold numbered eleven people—her husband, herself, her husband's nephew, her own niece and seven children—had no food for breakfast the next morning; my companion, who knew the family, said that the children had gone without food on Christmas day. Jim Dover declared that he did not know what he would have done if a neighbor had not helped him out. In Minden, a town in Fayette county, 130 families were receiving aid from the local chapter of the Red Cross and more than twenty others were being helped by the coal company.

Some of the effects of this distress cannot be found on the surface. Savings that it will take years to replace have been used up. Locals of the union have opened their treasuries; burial funds have gone for food. Many miners have allowed the premiums on small insurance policies to lapse, and so provision against death and old age has been removed. The total number of those in actual want is unknown. An estimate by the union places the number without work at 70,000, those without bread at 35,000, but no really dependable canvass has been made.[1]

The misery that is the result of this protracted unemployment is complicated by the gaunt specter of the conflict over unionism. For years the miners of West Virginia, led by the United Mine Workers of America, have been trying to extend their organization throughout the state. They have succeeded in bringing half of the employes within its membership, but the employers of the other half have so far been effective in checking them. The bloody scenes of the conflict that has raged in Mingo, McDowell, Logan and other counties have attracted wide attention. About two years ago agents of the Baldwin Felts Detective Agency, armed with rifles, went to the camp of the Stone Mountain Coal Corporation in Mingo county and evicted the families of seven men who had aided the union in a campaign for new members. While these agents were waiting at the little town of Matewan for the train that was to take them back home, a shooting affray started between them and residents of the town who were sympathetic with the miners. When the smoke had cleared away, ten men lay dead.

Sine then Mingo county has been little less than a battleground. The miners who had newly joined the union tried to secure a conference with their employers and, failing, went on strike July 1, 1920. For twenty-one months hundreds of these men, with their families, have lived in tent colonies on the Tug River; they have endured every hardship of snow, cold and rain, but they have not given up.

The operators have discharged men who joined the organization. They have employed labor spies to ferret out its plans. They have secured injunctions preventing any union organizer from appealing to their employers either by "persuasion" or otherwise; they have resorted to "yellow dog" contracts which compel a man to agree to have nothing to do with the union so long as he keeps his job. Deputy sheriffs paid by them have clubbed men for joining the union and have driven union agents out of the county. Martial law has been declared three times in Mingo county, and the state constabulary has been almost continuously on duty there.

This fight is now being carried farther by operators who have long had joint agreements with the union, with the aim, apparently, of ousting it entirely from the state. In the New River district, for example, the operators have been circulating petitions among their men which on their face read like voluntary appeals to be allowed to return to work as "individual employes" and at the wages in effect previous to September 1, 1919. The operators concerned have resorted to this move at a time when a nation-wide clash be-

[1] Miners in Distress, THE SURVEY for February 18. A nation-wide appeal for funds is now being conducted by the union, and relief committees have been formed in various northern cities to raise money.

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The
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By HUGH ARCHBALD
Mining Engineer

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tween the union and employers has been expected. The are taking advantage of the unemployment that has brough many men to their knees. What the effect may be on futur industrial relations in the state can only be guessed. It not to be expected that the miners will give up their unio freely. They may be driven to working by secret metho and to organizing in underground ways, but one thing i sure: permanent peace will not come through the destruc tion of the miners' union.

What does the whole story mean? From a mountainou countryside where people were few to a teeming industria civilization; from the independence of frontier life to com pany-owned towns; from the security of farming and rura occupations to the unsteadiness and intermittency of work deep inside the hill; from the peace and quiet neighborlines of a small settlement to the bitter hostility of conflict on a large scale: this is one aspect of the development of West Virginia's great wealth. Coal has brought many blessings in its trail, but it has brought also many perplexing difficulties and much unhappiness. The waste, both of human and natural forces, must be removed; the friction caused by an environment that too often neglects the simple essentials of comfort, health and a decent respect for the freedom of others, must be eliminated; the strife that throws one group of people at the throats of another must be ended.

ECONOMIC ASPECTS OF THE ANTHRACITE INDUSTRY

(*Continued from page* 1019)

for their total output. Sales realizations are of course the result of the prices at which the different sizes of coal are marketed. For example, early in 1913 the sales realizations at the mine were, per gross ton: domestic sizes (excluding pea) $3.42, pea $2.11 and steam sizes $0.98; and late in 1918, they were respectively $5.81, $4.45 and $2.85. The prices realized by the operator for the steam sizes are much below the average cost of mining his entire output, and it costs as much to mine the coal that becomes "steam," as that which is converted into "domestic." It is therefore necessary for him to make considerably more than an average profit on the domestic sizes. In practice it is the custom of the mining region to think of the revenue obtained from the sale of the steam sizes simply as a credit against the cost of production, thereby lowering the price which must be charged for the domestic sizes in order to operate at a profit. Sometimes an allocated cost, based on selling values, is computed for each size. The smaller the proportion of domestic sizes in an operator's total output the lower is his average sales realization. And this proportion of sizes varies considerably, because in different localities there are differences in the structure or texture of the coal, the pitch of the seam, the method of mining employed. The consumer, therefore, when confronted with widely varying figures of costs and of sales realizations, must realize that they may all be true and yet grossly misleading if not compiled from a broad enough basis to be representative.

Finally, when considering cost figures based on the Federal Trade Commission standards, it must be borne in mind that the margin does not mean profit in the sense of net return on investment. No allowance is included in the Federal Trade Commission mine costs for such items as selling expense, interest, income and excess profits taxes, all of which must be deducted before the net profit available for dividends or surplus can be determined. This caution is a very necessary one to observe. Unfortunately it was not possible in 1917 and 1918 for the Federal Trade Commission to collect the necessary detailed information which would make possible a statement of the net return on the investment.

We have thus far an approach but not an answer to questions as are uppermost in the minds of most consumers, when they consider the prices charged them coal. How about the profits which the mine operators the middlemen take before the coal reaches the bin? at is all this talk about royalties being a prime cause of excessive prices? How does it happen that when the of mining coal is reputed to be, let us say, $6 per at the mine, the consumer pays $16? With re- t to all these questions there is not yet sufficient in- nation collected and made public through disinterested nnels to permit of a conclusive answer—particularly answer which takes into consideration post-war con- ions. To determine profit, investment must be known as yet no adequate figures of the investment in the ies has been made available from any source. While re is much stress laid on excessive royalties (such as se paid the Girard estate) as a cause for high prices, s probable that the argument is much overworked when whole output is considered. Until some comprehen- , up-to-date, impartial study is made of the subject, it l continue to be an open question. When we come inquire into the difference between mine price and coal price, it is first of all necessary to bear in mind what been said of allocated mine costs and average sales lizations. That at least enables us to distinguish be- een the province of the operators and that of the middle- n. But when we come to consider costs, investments d profits of the jobbers, wholesalers and retailers, we d them shrouded in a deeper darkness. The limited infor- ation published by the Federal Trade Commission on their sts and surplus margins relates to conditions from 1916 1918, which in many respects have materially changed. view not only of the present crisis but of future public eds, it is highly desirable that some permanent govern- ental body be entrusted with the duty of collecting and ulishing adequate and current information relating to all anches of the coal industry.

FOR nearly twenty years the anthracite industry has had an enviable record among the great industries of the untry for industrial peace. The foundation was laid by e award made by the Anthracite Coal Strike Commis- on appointed by President Roosevelt to settle the long rawn out anthracite strike of 1902. The agreement en- red into in 1903 between the operators and miners in rrying out the terms of the award has been continued ith a few modifications of details down to the present me. The main features of the successive agreements ave been: (1) the establishment of a regular collective argaining practice for dealings between operators and iners; (2) the adjustment, between operators' representa- ves and miners, of wage scales, hours of labor, and various orking conditions at fixed intervals three or four years part; (3) the establishment of a joint conciliation board omposed of three representatives of each side for the settle- ent of grievances which may be referred to it from the ollieries, and the practice of referring to a disinterested mpire for settlement any disputes which the board was nable to settle; (4) the making of the agreements to xtend over a period of years (the first three were for three ears, the next two for four years, and the last for two ears). Of these features, the most distinctive and the ne which has been often taken as a model for use in other ndustries is the joint conciliation board. It is this feature hich appears to have been the chief one in promoting armonious relations between operators and miners. The unctions assigned to the board in the original agreement of 903 have been somewhat modified and strengthened, nota- ly by the agreement of 1912.

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One of the demands put forward before the Anthracite Coal Strike Commission of 1903 by the representatives of the employes, was that the United Mine Workers of America be recognized as a party to the wage contract. In the award there was no recognition except of "representatives of the anthracite mine workers as party to agreement." This demand was renewed when subsequent agreements were negotiated, sometimes coupled with a demand that the "check off" system of union dues be established whereby the operator was made the collection agency of the union. The demands of the miners were refused each time by the operators, and were left out of the agreements. In 1920, however, after a protracted attempt to arrive at an agreement, it seemed probable that a strike would result. To avert a strike, President Wilson persuaded both sides to submit their disagreements to the arbitration of a commission appointed by him. This was the United States Anthracite Coal Commission. At this time the demand was put forward in the following form:

Demand No. 6.

We demand a closed shop contract which means full recognition of the United Mine Workers of America as a party to the agreement.

This demand was considered by the operators as the crucial one among the eighteen demands submitted by the miners. As was pointed out to the commission by the leading representative of the operators, it had been possible on all the others to arrive at a practical agreement of both sides at the time of the mediation of the Secretary of Labor which preceded the appointment of the commission. But on that demand neither side was willing to compromise. In its award[4] the commission recognized the union but did not sanction the "check-off" or closed shop.

There is no intention in this article to go at length into the controversial details of the anthracite labor situation. However, it is pertinent to call attention to certain comparisons between the bituminous and anthracite conditions since 1903, when the first anthracite agreement was established.

One means of measuring the efficacy of the method followed for avoiding labor disputes is to be found in considering the average number of days lost through strikes or suspensions during the year per man on strike. This measures the promptness with which the labor disputes were settled. The average time during 1903-1919 lost each year per man on strike was 36 days in bituminous and 9 in anthracite. The following figures compiled from United States Geological Survey sources, show average time lost per man employed in the industry:

YEAR	BITUMINOUS DAYS	ANTHRACITE DAYS	YEAR	BITUMINOUS DAYS	ANTHRACITE DAYS
1903	3.2	none	1912	10.2	39.7
1904	7.6	0.2	1913	4.5	2.7
1905	1.7	0.2	1914	18.6	1.0
1906	27.7	36.7	1915	4.0	1.2
1907	0.9	none	1916	4.3	6.0
1908	10.6	none	1917	3.6	1.0
1909	1.4	none	1918	0.7	0.5
1910	34.6	0.1	1919	24.7	1.5
1911	1.7	0.2			

[4] "That the commission approves the request for recognition of the United Mine Workers of America as party to the agreement in adjusting the differences between the operators and the miners in all the contractual relations between the parties and directs that the form of contract entered into as provided in this award shall be between districts 1, 7, and 9 of the United Mine Workers of America, as represented by the presidents of the three districts, and the anthracite operators.

"Provided, however, that this official recognition of the United Mine Workers of America for the purpose of adjusting differences and strengthening collective bargaining, does not carry with it the theory or the fact of the "closed shop," or the "check-off"; and provided further, that it does not in any degree interfere with or annul the provisions of the award in 1902 in which the rights and privileges of non-union men were stated and protected; and provided further, that in cases where non-union employes have grievances or where for any reason the grievance committee or mine committee fails to give such grievance consideration satisfactory to the employe, his right to appeal from the decision of the foreman or grievance committee and to the board of conciliation shall be inviolate."

The average time lost a year for each man employed in the bituminous industry during the eighteen years was 9.4 days; in the anthracite, 5.4 days. The effect of the strikes or suspensions from work by the bituminous miners on the odd years when the biennial wage agreements were negotiated is marked. The only exceptions are 1916 and 1918, whereas 1919, the year of the last great strike, is an exception to the rule in odd years. Most of the lost time of the anthracite miners occurred in two years—1906, when a "peaceful" suspension went into effect from April 1 to May 7, at which date the agreement was renewed for three years; and again in 1912, when the miners abstained from work from April 1 to May 20, when the agreement was renewed for four years. During the other sixteen years, the time lost through strikes and suspensions averaged one day a year for each man in the industry. With the exception of the "vacation" strike of 1920, which was an expression of disapproval against the arbitration award, there has been, since 1912, no regular "peaceful" suspension in the anthracite industry carried on at the time of negotiation of an agreement.

IN conclusion it may be pointed out that the differences between anthracite and bituminous strike history since 1903 are in no small degree attributable to the centralized organization and unity of policy in the anthracite industry. The determination of labor policies as well as the ownership of the unmined reserves, the control of the bulk of the production, and of the dominant price policies of the industry, are in the hands of a small group of operators, who, in addition to having power, have shown leadership. There has also been a similar sense of unity among the union employes. Districts 1, 7 and 9, though technically branches of the United Mine Workers, have been virtually independent of the parent organization in matters of determining their own policies and entering into agreements with the operators. Much the same personnel has year to year made up the committees of operators and employes who have negotiated collective bargaining agreements, a condition highly conducive to mutual understanding and amicable adjustment of disputes. Furthermore, the conditions throughout the region are not so dissimilar but that most questions coming up for discussion would be familiar to all concerned. On the other hand, the bituminous fields are widely scattered through thirty states, are competing fiercely with each other, and are heavily over-developed, with no great centralized control either in the hands of the operators or the union. There is no definite leadership settled upon a few operators who can be counted on to follow a consistent policy year after year. The same is true in regard to labor leaders. There has been a wide diversity in sectional interests. Not infrequently bitter struggles for control of policies have taken place between operators located in different parts of the country, as well as between leaders in the union representing either widely different ideas, or the conflicting interests of different districts. Therefore there have existed no such unity of policy and no conditions favorable to successful collective bargaining and peaceful settlement of labor disputes such as in the anthracite industry.

SINCE every cost or waste in coal production, whether it be of natural resources, of man power or of capital, must eventually be borne by the coal consumer, it is not enough for the man in the street merely to read the news of threatened strikes, grumble over high prices and talk of profiteering and summary legislation. He must realize that this is a problem which he too must cooperate in solving, by bringing about an intelligent public opinion without which no sound and equitable settlement of the coal problems of this country is possible.

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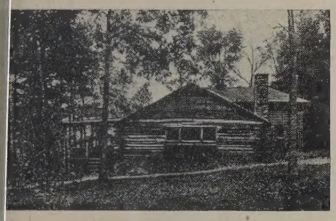

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MISTER SUPER

(*Continued from page* 1025)

"You give him another try. He work hard. . . . Y see it is this way. She live here twelve years. Alwa pay rent. Always trade at store. Her man he get j at Gum Stump. Then mine shut down and he go Ald and get job. Too far away. All her friends here. S want to live here."

Not only must the workmen move, but the bosses t must move into strange towns and find again new friend Life long friends? Sometimes. Not often. It is not po sible to spend a lifetime with the same people!

Move. That is the rule of bituminous coal minin Sometimes it is your own fault. Often it is not. Person possessions are a handicap in any case.

Idleness then, and isolation are the two things whic give character to bituminous coal mining. They affe every one around the mine. An old friend was found on railroad train. In the old days he has been famous f the number of his friends and for the smile on his fa and the late hours which he kept each night: a man wh was alive when he lived in the city.

"Hello! Pete. What are you doing?"

"Managing a coal mine."

Then later.

"Say. It is some difference from the old days. . . . O well, I do pretty well. I have a room in the foreman house and a few magazines. I cock my feet up on a cha after supper. Generally I am in bed by eight o'clock."

Work over and nothing to do. Idle and isolated.

Those who have been born and brought up in coa mining are habituated to these conditions and it does no worry them as it does an outsider. To others it is un endurable and they seek other work. Very few colleg graduates stay in coal mining. It is an outdoor life an men retain an appearance of youth longer than those con fined to offices. But such things are externals.

The question is sometimes asked by those outside o mining: "With all the coal that there is, why does coa cost so much? The cost of coal as it stands in the groun is not much. The trouble is that the work which is don upon one ton of coal has so much to carry that the return for the work must be higher than its intrinsic value. I the United States we do produce more tons per man tha England, but with intermittency eliminated and efficiencie applied, the output per miner per year could be quadrupled As things are in the whole situation of coal there is an attempt to save at the bung hole and a riotous waste a the spigot. There is many a coal man who knows that the savings which might be made around the mines alone, run into the hundreds of millions of dollars a year.

Administration is the big problem of coal mining: human engineering. Metal mining has problems of geology and metallurgy. Not so with coal. Here the mining problems are simple. It is the organization of the work of men which is complex. Yet the whole problem of efficient operation of coal mines has not been scratched. Scientific management has been applied to other lines of production work, but such engineering is unknown in coal mining. It hardly can be applied on account of the intermittency of operation. You cannot maintain a trained force of men when most of the days are going to be idle days. The idleness would inevitably break down all morale and make them sloppy workmen, to say nothing of the overhead expense of retaining them during idle periods.

Meanwhile the mine boss making his rounds on the path over the hills meets workmen who greet him: "'Allo, Meestaire, work tomorrow?" and in the majority of cases he must answer, "No. Not tomorrow."